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ENCYCLOPÆDIA OF USEFUL INFORMATION

BY

PROFESSOR D. L. WEBSTER

A MARVELOUS COMPENDIUM OF KNOWLEDGE ON EVERY POSSIBLE SUBJECT, ABSOLUTELY INDISPENSABLE FOR EVERY ONE IN ALL WALKS OF LIFE, PENMANSHIP, BUSINESS FORMS, COMMERCIAL LAW, HOW TO CALCULATE AND KEEP BOOKS, LAW AND LEGAL FORMS, FIRE AND LIFE INSURANCE, BANKING, THE NEW (1897) TARIFF LAW COMPARED WITH McKINLEY AND WILSON TARIFFS, MINING LAWS AND PRACTICE, HISTORY OF THE UNITED STATES, RULES OF ARITHMETIC, FAMILY PHYSICIAN, ILLUSTRATED LIVES OF FAMOUS PEOPLE, THE ALASKA-KLONDIKE GOLD FIELDS, VETERINARY MEDICINE, FAMILIAR QUOTATIONS, MECHANICAL AND SCIENTIFIC TERMS, 15,000 SYNONYMS, RIGHTS AND DUTIES OF FARMERS, HISTORY OF THE BIBLE, RECIPES OF ALL KINDS, CHOICE POEMS, CONSTITUTION OF THE UNITED STATES, AND THOUSANDS OF PRECIOUS ITEMS OF INFORMATION GATHERED BY EXPERTS.

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THERE is no easy road to success!—I thank God for it. * * * * A trained man will make his life tell. Without training, you are left on a sea of luck, where thousands go down, while one meets with success.

JAMES A. GARFIELD.

McKINLEY AND HIS CABINET.

THE ART OF PENMANSHIP

How to Become a Handsome Writer.

THE subject of the importance of good writing is as broad as its use. Reaching out in every direction, and pervading every corner of civilized society, from the humblest up to the highest employments, it is a servant of man, second only in importance to that of speech itself. In the world of business its value is seen, from the simplest record or memorandum, up to the parchment which conveys a kingdom. Without it, the wheels of commerce could not move a single hour. At night it has recorded the transactions of the Bank of England during the day; of London; of the whole world.

Through the art of writing, the deeds of men live after them, and we may surround ourselves with the companionship of philosophers, scientists, historians, discoverers and poets; and their discoveries, and reasonings and imaginings become ours. In the amenities of social life, through the medium of the pen, heart speaks to heart, though ocean rolls between. Thoughts of tenderness and affection live when we are gone, and words and deeds of kindness are not preserved by monuments alone. What fountains of grief or joy have been opened in the hearts of those who have read the records of the pen! The pen has recorded the rapturous emotions of love reciprocated. The pen has written the message of sadness which has covered life's pilgrimage with gloom. The pen has traced the record of noble and useful lives, spent in humanity's cause. The songs of the poet, the beautiful tints of his imagination, the flights of the orator in the realms of fancy, and the facts of history, would all perish as the dew of morning, without this noble art of writing.

As a means of livelihood, there is perhaps no other department of education which affords such universal and profitable employment, as writing. From the mere copyist, up to the practical accountant, and onward into that department of penmanship designated as a fine art, the remuneration is always very ample, considering the time and effort required in its acquisition.

Teachers, editors, farmers, doctors and all persons should possess a practical and substantial knowledge of writing, and should be ready with the pen. Business men must of course be ready writers, and hence, in a treatise on business, designed for the education and advancement of the youth of the country, it seems eminently fitting to first make the way clear to a plain, practical handwriting.

Neatness and accuracy should characterize the hand-writing of every one. Botch-work and bungling are inexcusable, as well in writing as in the transaction of business. No person has a right to cause a tinge of shame to their correspondent, by sending a letter addressed in a stupid and awkward manner, nor to consume the time of another in deciphering the illegible hooks and scrawls of a message. Every one should have the ambition to *write* respectably as well as to *appear* respectable on any occasion.

MATERIALS USED IN WRITING.

Having a suitable desk or table, arranged with reference to light, in order to learn to write, it is necessary to be provided with proper materials. Writing mate-

rials are so abundant and so cheap in these times that no excuse is afforded for using an inferior or worthless quality. The materials consist of *Pens*, *Ink* and *Paper*.

PENS.

Steel pens are considered the best. Gold pens have the advantage of always producing the same quality of writing, while steel pens, new or old, produce finer or courser lines. Notwithstanding this advantage in favor of the gold pen, steel pens adhere to the paper, and produce a better line. The pen should be adapted to the hand of the writer. Some persons require a coarse pen, and some fine. Elastic pens in the hand of one writer may produce the best results, while a less flexible pen may suit the hand of others best. Pens are manufactured of almost an infinite grade and quality, in order to suit the requirements of all. About the only rule that can be given in selecting pens, is to write a few lines, or a page, with each of the pens on trial, and then compare the writing. If it be shaded too heavily, select a less flexible pen, if the hair lines are too delicate, select a coarser pen.

INK.

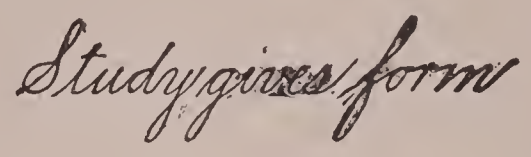
Black ink is always preferable. That which is free from sediment and flows well, should be selected. Use an inkstand with broad base as being less liable to upset. With persons in learning to write it is perhaps best to have a quality of ink which is perfectly black when put on the paper, in order that they may see the results of their labor at once. Business men and accountants prefer a fluid ink, however, which, although not black at first, continues to grow black, and becomes a very bright and durable black, notwithstanding the action of light and heat. Avoid the use of fancy colored inks, especially the more gaudy, such as blue, red or green, in writing all documents which you desire to command attention and respect.

PAPER.

There are almost as many grades of paper to be found in the stationery stores, as there are of pens. For practicing penmanship, nothing is more suitable than foolscap, which may be easily sewed into book-form, with cover of some different color, and thus serves every requirement. The paper should have a medium surface, neither rough and coarse, or too fine and glazed. Have a few extra sheets beside the writing book, for the purpose of practicing the movement exercises and testing the pens. Be provided at all times with a large-sized blotter, and when writing, keep this under the hand. Do not attempt to write with a single sheet of paper on a bare table or desk; there should be many sheets of paper underneath, in order to make an elastic surface.

STUDY WITH PRACTICE.

Aimless, indifferent, or careless practice, never made a good writer, and never will. In order to succeed in this, as in other things, there must be will and determination to succeed, and then persevering and studious effort. Study the models until their forms are fixed in the mind.



No one can execute that which he does not clearly conceive. The artist must first see the picture on the white canvas, before he can paint it, and the sculptor must be able to see in the rough and uninviting stone, the outlines of the beautiful image which he is to carve. In writing, a clear idea of the formation of the different letters, and their various proportions, must become familiar by proper study, examination and analysis. Study precedes practice. It is, of course, not necessary, nor even well, to undertake the mastery of all the forms in writing, by study, until some have been executed. It is best that each form should, as it is taken up, be first measured and analyzed and then practiced at once.

It is the act which crowns the thought. After study, careful and earnest practice can hardly fail to make a good writer of any one. Some persons secure a good style of penmanship with less labor than others, and attain to the elegant, and beautiful formation. But it is only fair to presume that no greater diversity of talent exists in this direction than in the study of other things. All do not learn arithmetic or history with like ease, but no one will assert that all who will, may not learn arithmetic or history. And so, all who will put forth the proper exertion in study and practice may learn to write a good business style, while many of the number will attain to the elegant. The conditions of practice in writing are, *Position of the Body*, *Position of the Hand and Pen*, *and Movement*.

POSITION OF BODY.

SITTING squarely fronting the desk, with feet placed firmly on the floor, and both arms on the desk, is, as a rule, the best position for practice in writing, or correspondence. The right side, may, however, be placed to the desk, with the right arm, only, resting thereon, and some persons prefer this position. Avoid crossing the feet, sitting on the edge of the chair, or assuming any careless attitude. The body should be erect, but slightly inclined forward, in order that the eye may follow the pen closely. This position will never cause curvature of the spine. The body should never be allowed to settle down into a cramped and unhealthy position with the face almost on the paper. By thus compressing the lungs and the digestive organs they are soon injured, and if the stomach lose its tone, the eyesight is impaired, there is such a close sympathy between these organs of the body. The practice of writing should be, and properly is, a healthful exercise, and injurious effects result only from improper positions of the body, at variance with good writing as well as good health.

When wearied by sitting and the effort at writing, lay aside paper and pen, arise from the chair, and take exercise and rest by walking about the room or in the open air. Then come back refreshed, and vigorous, for the practice of writing.

In general, the light should fall on the paper from the left side, thus enabling a writer to clearly see the ruled lines, and render the labor of writing easier and more rapid. If one writes left-handed, of course he will sit so as to get his light from the right side, or over the right shoulder.

SHADING.

As a beautifier of the handwriting, by causing a diversity of light and shade among the letters, shading has its value; but in the practical handwriting for business purposes, it should, as a rule, be classed with flourishing, and left out. Requiring time and effort, to bring down the shades on letters, business men, clerks and telegraph operators find a uniform and regular style of writing, without shade, the best, even though it may not be as artistic.

UNIFORMITY.

A most necessary element in all good penmanship is uniformity. In the slope of the letters and words which form a written page there must be no disagreement. With the letters leaning about in various directions, writing is presented in its most ridiculous phase. Uniformity in the size of letters, throughout the written page; how greatly it conduces to neatness and beauty. All letters resting on the line, and being of uniform hight, adds another condition towards good penmanship. This essential element of uniformity may be watched and guarded closely and cultivated by any learner in his own practice.

SLANT OF WRITING.

As said before, it matters not so much what angle of slant is adopted in writing, provided it is made uniform, and all letters are required to conform exactly to the same slant. Writing which is nearest perpendicular is most legible, and hence is preferable for business purposes. The printed page of perpendicular type; how legible it is. But for ease in execution, writing should slant. It follows then that writing should be made as perpendicular as is consistent with ease of execution. The slant of writing should not be less than sixty degrees from the horizontal.

Position of Body While Standing.

THE practical book-keeper finds it advantageous to do his writing while standing; in fact, where large books are in use, and entries are to be transferred from one to another, the work of the book-keeper can hardly be performed otherwise than in a standing position, free to move about his office. Cumbrous books necessitate a different position at the desk, from that of the correspondent, or the learner. Since large books must lie squarely on the desk, the writer, in order to have the proper position thereto, must place his left side to the desk. The body thus has the same relative position, as if squarely fronting the desk with the paper or book placed diagonally. In other words, the writer, while engaged in writing in large, heavy books, must adjust himself to the position of the books. Should the correspondent or bill clerk perform his work while standing, he would assume the same as the sitting position—squarely fronting the desk.

LEGIBILITY.

Children, in learning to write, are apt to sacrifice all other good qualities of beauty, regularity and grace, for the quality of legibility, or plainness. With some older persons this legibility is considered of very little consequence, and is obscured by all manner of meaningless flourishes, in which the writer takes pride. In the estimation of the business man, writing is injured by shades and flourishes. The demand of this practical time is a plain, regular style that can be written rapidly, and read at a glance.

FINISH.

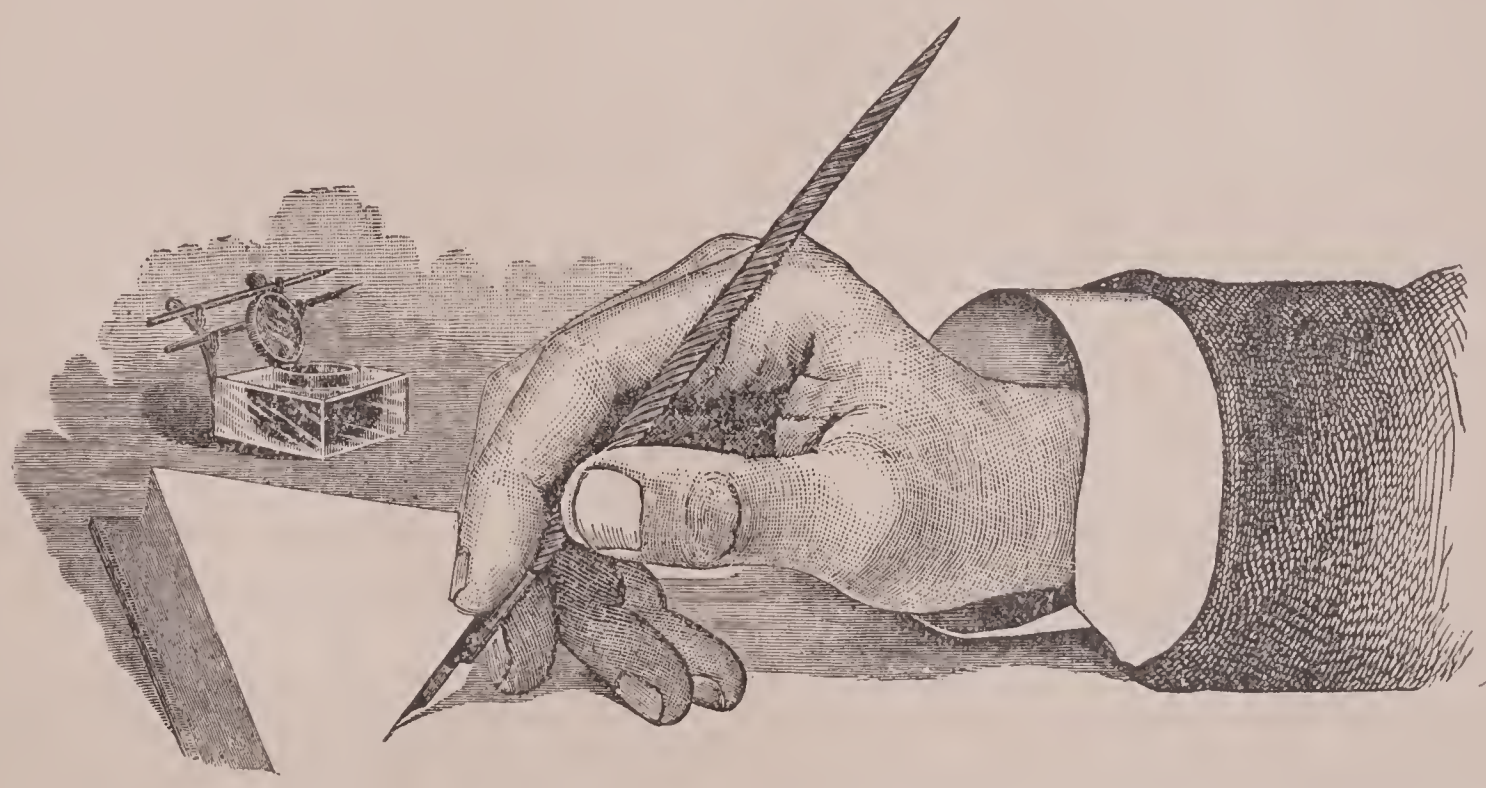
By a careless habit, which many persons allow themselves to fall into, they omit to attend to the little things in writing. Good penmanship consists in attention to small details, each letter and word correctly formed, makes the beautiful page. By inattention to the finish of one letter, or part of a letter of a word, oftentimes the word is mistaken for another, and the entire meaning changed. Particular attention should be devoted to the finish of some of the small letters, such as the dotting of the i, or crossing of the t. Blending the lines which form a loop, often causes the letter to become a stem, similar to the t or d, or an e to become an i. In many of the capital letters, the want of attention to the finish of the letter converts it into another or destroys its identity, such, for instance, as the small cross on the capital F, which, if left off, makes the letter a T. The W often becomes an M, or *vice versa*, and the I a J. Mistakes in this regard are more the result of carelessness and inattention than anything else. By careful practice a person will acquire a settled habit of giving a perfection to each letter and word, and then it is no longer a task, but is performed naturally and almost involuntarily, while the difference in the appearance of the written page, as well as the exactness and certainty of the meaning conveyed, may be incalculably great.

While practicing penmanship, or while endeavoring to correct a careless habit in writing, the mind must be upon the work in hand, and not be allowed to wander into fields of thought or imagination; by thus confining the attention, any defect or imperfection in the formation of letters may be soon mastered or corrected.

Position of the Hand and Pen.

THE right arm should rest on the muscles just below the elbow, and wrist should be elevated so as to move free from paper and desk. Turn the hand so that the wrist will be level, or so that the back of the hand will face the ceiling. The third and fourth fingers turned slightly underneath the hand will form its support, and the pen, these fingers and the muscles of the arm near the elbow form the only points of rest or contact on desk or paper. The pen should point over the shoulder, and should be so held that it may pass the root of the nail on the second finger, and about opposite the knuckle of the hand. An unnatural or cramped position of the hand, like such a position of the body, is opposed to good writing, and after many years of observation and study, all teachers coneur in the one position above described, as being the most natural, easy and graceful for the writer, and as affording the most freedom and strength of movement.

Avoid getting the hand in an awkward or tiresome position, rolling it over to one side, or drawing the fore finger up into a erooked shape. Hold the pen firmly but lightly, not with a grip as if it were about to escape from service. Do not say, "I can't" hold the pen correetly. Habits are strong, but will may be stronger, and if you hold the pen correctly in spite of old habits, for a few lessons, all will then be easy, and



the pen wil. take its position at each writing exercise, with no effort whatever. Everything being in readiness, and the proper position assumed, the writer must now obtain eomplete control of hand and pen, by practiee in movement.

RAPIDITY.

One of the essentials of a practieal business style of writing must be rapidity of execution, in order to be of any avail in the necessities and press of a business position. The demand of the merchant is, that his clerk shall not only write well, but with rapidity, and the volume of letters to be answered, bills to be made out, or items to be entered on the books of account, compel the clerk to move the pen with dexterity and rapidity, as well as skill. While there is great diversity among persons as to the rapidity as well as quality of their penmanship, some being naturally more alert and aetive than others, yet by securing the proper position of the hand, arm and body, favorable to ease and freedom of execution, then following this with careful practice in movement, until all the varied motions necessary in writing are thoroughly mastered, the person may, with suitable effort, acquire the quality of rapidity in writing, gradually increasing the speed until the desired rate is accomplished.

BEAUTY.

In the handwriting, as in other things, beauty is largely a matter of taste and education. To the man of business, the most beautiful handwriting is that which is written with ease, and expresses plainly and neatly the thought of the writer. To the professional or artistic taste, while such a hand may be regarded as "a good business hand," it would not be considered as beautiful, because it eonforms to no rule as to proportion, shade, and spacing. In the praetical art of writing, it is not very unfair to measure its beauty largely by its utility.

MOVEMENT.

FINGER movement, or writing by the use of the fingers as the motive power, is entirely inadequate to the requirements of business. The fingers soon become tired, the hand becomes cramped, the writing shows a labored effort, and lacks freedom and ease so essential to good business penmanship. In the office or counting-room, where the clerk or correspondent must write from morning till night, the finger movement of course cannot be used.

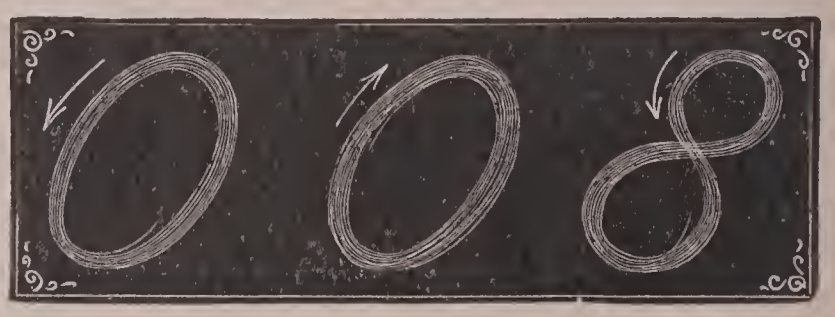
What is designated by writing teachers as the Whole Arm, or Free Arm Movement, in which the arm is lifted free from the desk and completes the letter with a dash or a swoop, is necessary in ornamental penmanship and flourishing, but has no place in a practical style of business writing. The man of business would hardly stop, in the midst of his writing, to raise the arm, and execute an "off-hand capital," while customers are waiting.

But adapted to the practical purposes of business is the *muscular movement*, in which the arm moves freely on the muscles below the elbow, and in cases of precise writing, or in the more extended letters, such as f, is assisted by a slight movement of the fingers. The third and fourth fingers may remain stationary on the paper, and be moved from time to time, or between words, where careful and accurate writing is desired, but in more rapid, free and flowing penmanship, the fingers should slide over the paper.

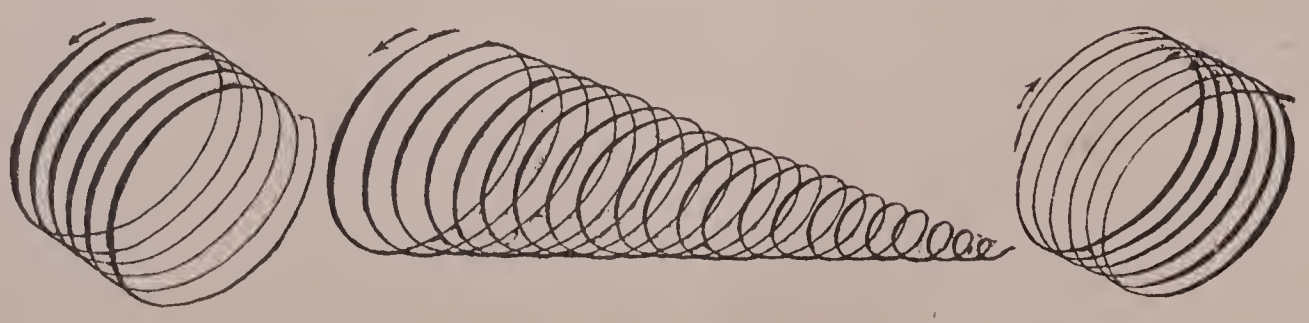
MOVEMENT EXERCISES.

Having everything in readiness, the student may begin his practice on movement exercises, the object of which is to obtain control of the pen and train the muscles. Circular motion, as in the capital O, reversed as in the capital W, vertical movement as in f, long s and capital J, and the lateral motion as in small letters, must each be practiced in order to be able to move the pen in any direction, up, down, or sidewise.

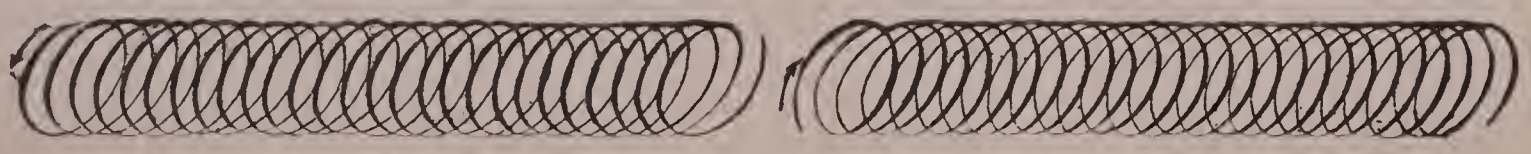
The simplest exercise in movement. Try to follow around in the same line as nearly as possible. Do not shade.



The same exercise, only with ovals drawn out and and slight shade added to each down stroke

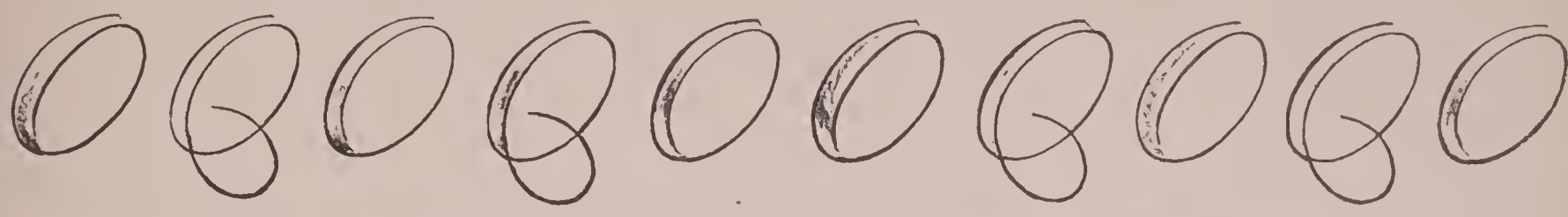


Sides of ovals should be even, forming as nearly a straight line as possible. Reverse the movement as in third form.



The following three exercises embrace the essential elements in capital letters, and should at first be made large for purposes of movement:

Capital O, down strokes parallel.



Capital stem. Down stroke a compound curve. Shade low. Finish with a dash.

Capital loop. Curves parallel. First curve highest.

Having succeeded to some extent with these exercises, the learner may next undertake the vertical movement. In order to obtain the lateral movement, which enables one to write long words without lifting the pen, and move easily and gracefully across the page, exercises like the following should be practiced·

Down strokes straight. Even and resting on line.

In all movement exercises the third and fourth fingers should slide on the paper, and the finger movement should be carefully avoided. The different movements having been practiced, they may now be combined in various forms

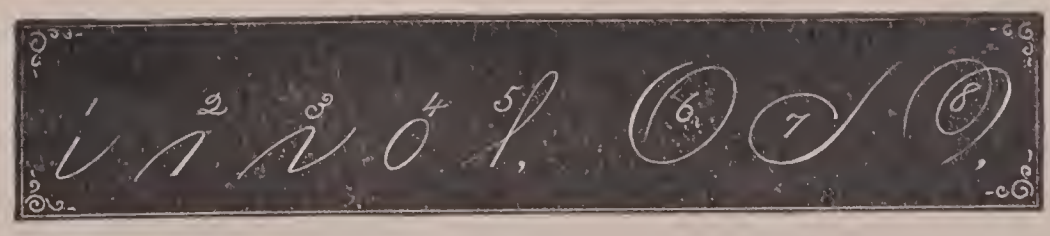
Lateral and rolling movement combined. Vertical movement and rolling movement combined.

Do not shade the circles. Lines should be parallel.

Movement exercises may be multiplied almost indefinitely by studying the forms used in writing and their combinations. Repeating many of the small letters, such as m, u, e, r, s, a, d, h and c, also capitals D, J, P, etc., forms an excellent exercise for the learner.

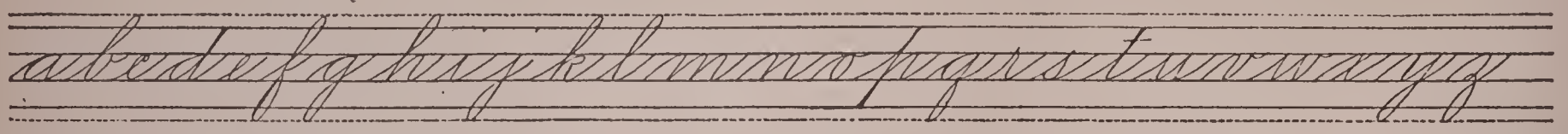
PRINCIPLES IN WRITING.

In order to enable the learner to examine, analyze and criticise his writing, the following principles are given as his standards of measurements and form. By combining them in various ways the essential part of all letters in the alphabet may be formed.

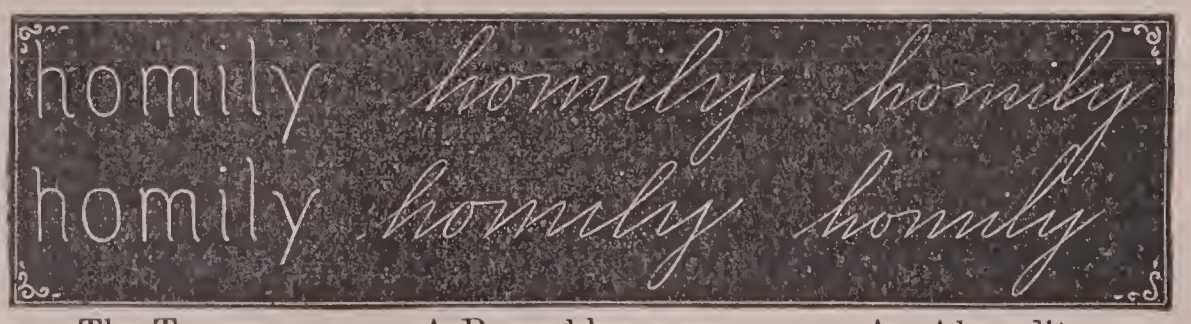


The principles must be first carefully studied, and separated into the primary lines which compose them and the form of each principle well understood. The student may then form a scale like the one following, by

dividing the distance between the blue lines on the paper into four equal spaces, with a lightly ruled line. The letters of the small alphabet should then be placed in the scale and the hight of each letter fixed in the mind.



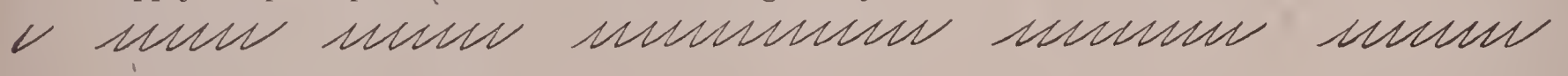
Notice that the contracted letters, or those which occupy only one space, as a, m, n, o, s, v, w and e, and that part of d, g, h, q and y, found in the first space, are all well rounded and developed. These letters and parts of letters, found in the first space, form the essential part of all writing, and therefore deserve especial care. Also notice that the loop letters, above the line, such as b, f, h, k and l, extend two and one-half spaces above the blue line, while the loop below the line, such as g, f, j, q, y and z, extend one and one-half spaces below the blue line, thus two and one-half and one and one-half making the four spaces of the scale, and the upper loops on one line will just meet the lower loops of the line above, but never conflict, to the destruction of neat body writing. Notice the type of the printer. The extensions above the shorter letters are quite insignificant, and are only used to save the letter from resembling some other letter of the alphabet. They never conflict, and how legible they are.



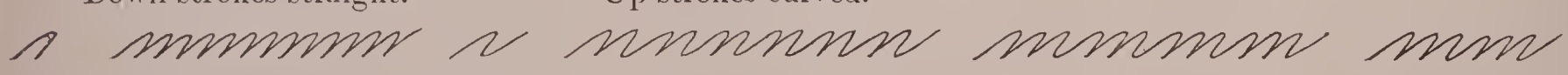
The Types. A Resemblance. An Absurdity.

Besides, to make long loops, requires more time, and more power with the pen, while shorter loops are in every way easier to acquire, quicker, and better. Telegraph operators, some of whom are among our best business penmen, make all extended letters very short, while accountants, and business men, favor the style of short loops, well developed letters, and small capitals.

Apply the principles. Observe regularity. Muscular movement.



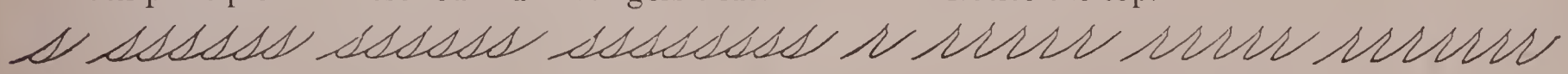
Down strokes straight. Up strokes curved.



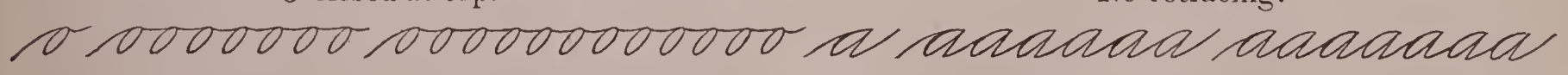
Principle No. 1. Well formed loop.

These exercises should be practiced with the muscular movement, until they can be made with regularity and ease.

4th principle. Let 3d and 4th fingers slide. Notice the top.



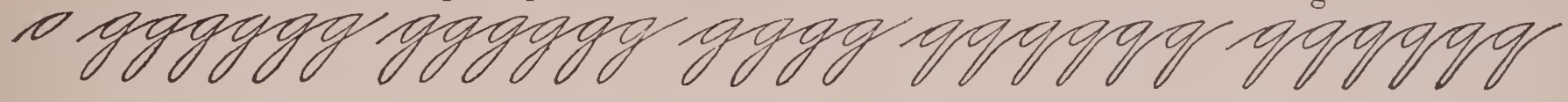
O closed at top. No retracing.



Two spaces high. Down stroke straight.

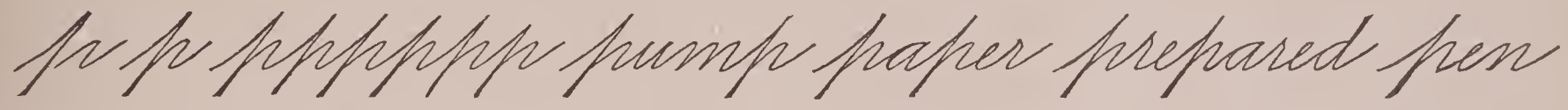
A rule in writing may be laid down, that all small letters should commence on the blue line, and end one space high.

Discover the principles. Avoid retracing.

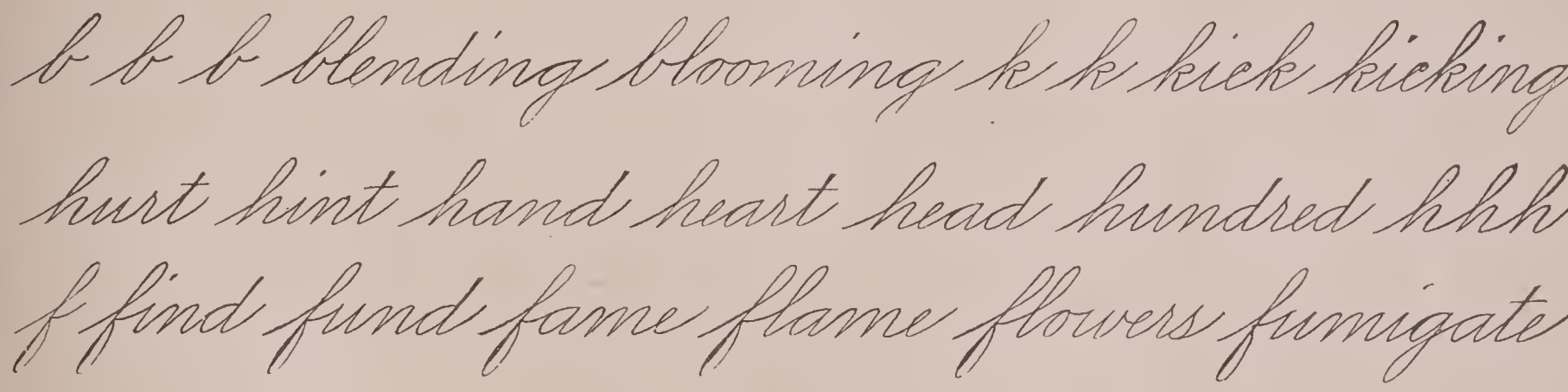


Notice form. In w, last part narrow. Make without raising the pen.

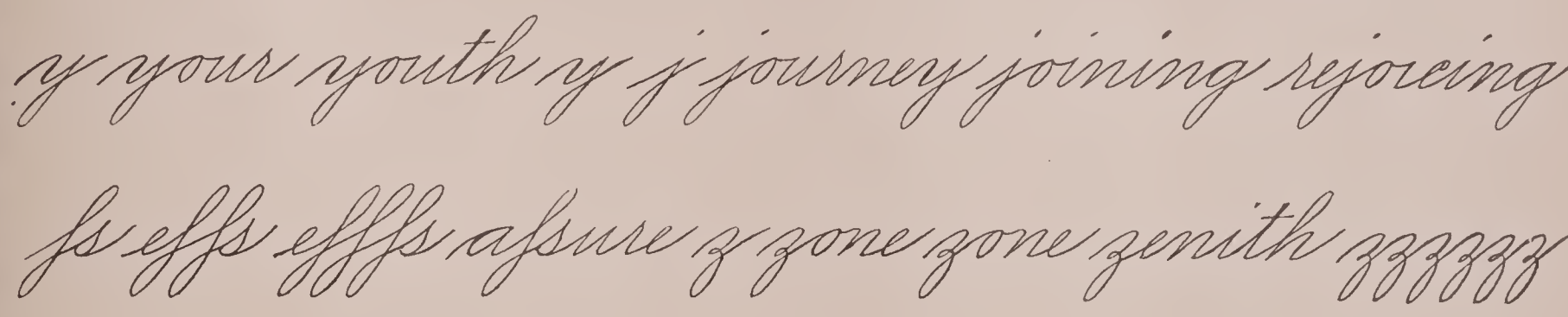
Extend two spaces above the line, and one below.



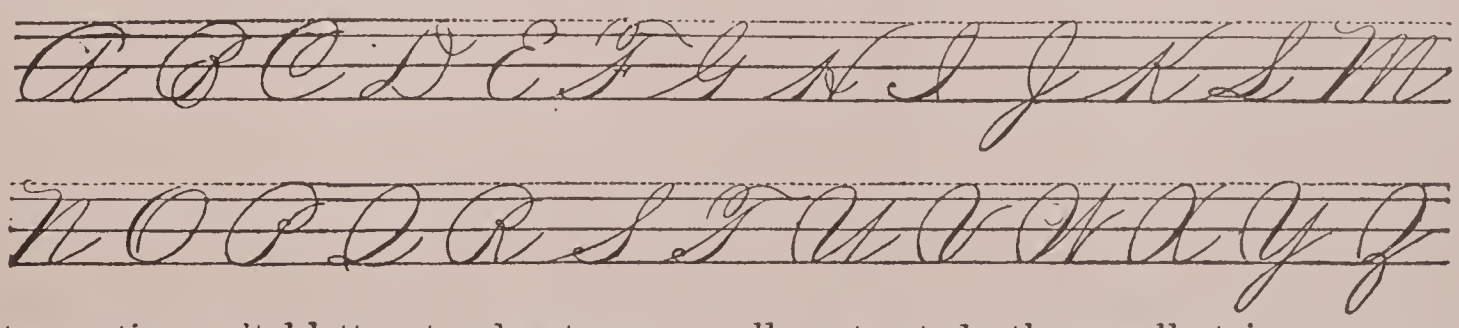
Retracing is an error. The only exception to this is in d, t, p and x, where it becomes necessary.



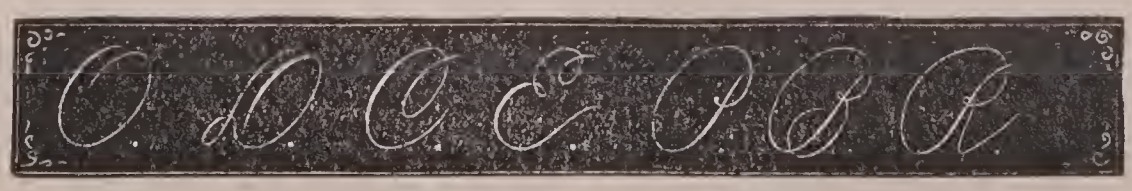
Upper loops have their crossing at the hight of one space, while lower loops cross at the blue line.



Place the capital letters on the scale, analyze them according to principles 6, 7 and 8, and notice their relative proportions.



In order to practice capital letters to advantage, as well as to study them, collect in a group or family all those letters which have some one form or principle as an essential part. Take first the 6th principle, or oval, and we group the letters as follows:



The excellence of an oval depends largely on its fullness and roundness. No corners or flat sides.

Down strokes parallel. Capital D is a Capital O with a knot on the lower corner.

O Olean Orleans Ohio Delia David Dahlia

C Church Currency C E Elucidate Economy

P Prince Prayer P B Began R Raymond R

The letters in which the capital stem, or 7th principle, forms a leading part, may be grouped as follows:

In the H and K, the capital stem is almost straight on the down stroke, in the F and T it is little more of a wave line, and in S and L the line is much of a compound or double curve.

H Hand Hunter Hinder K Kingdom Ky.

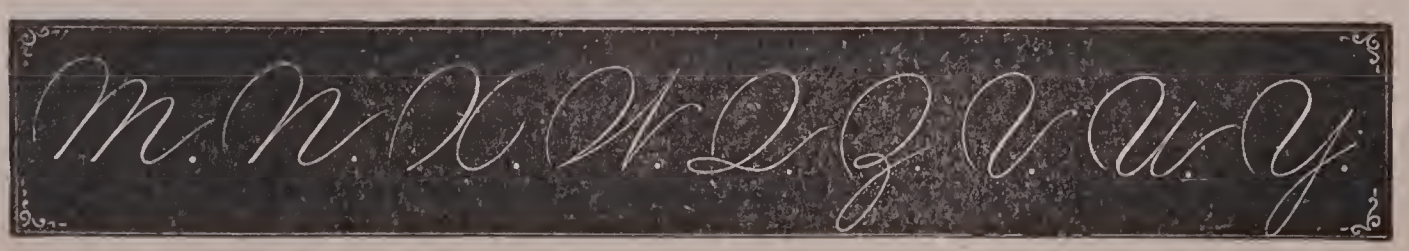
F Famine Fremont T Tenement Troy

S Sumpter St. L Larimore G Grammar

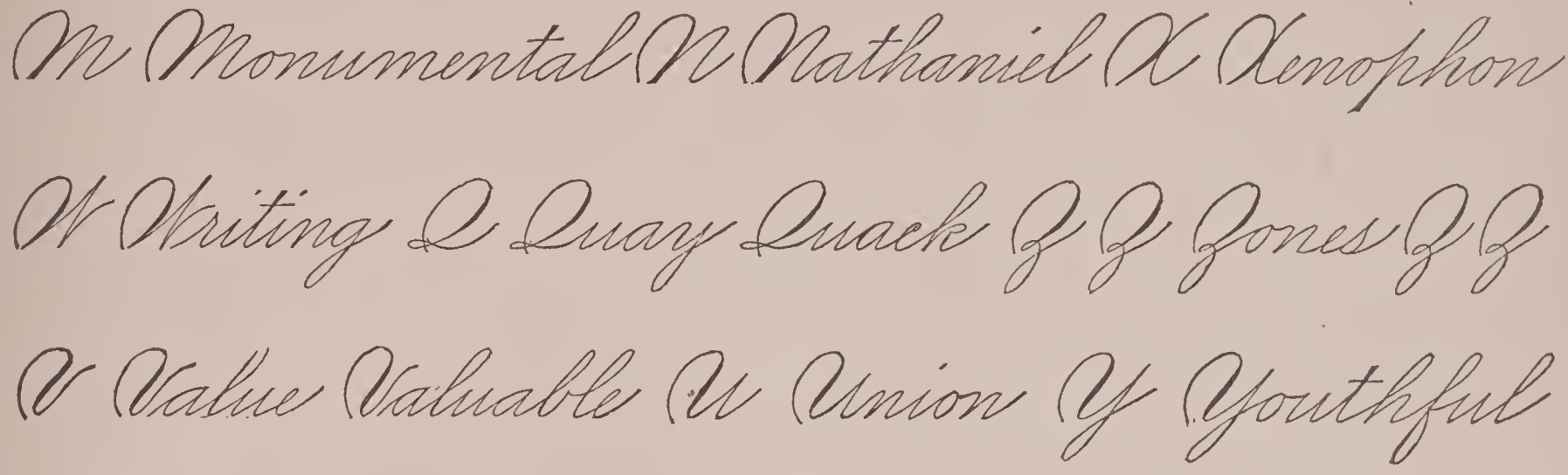
The capital I, and also the J, which is a modified I, are sometimes classed among the capital stem letters, from the resemblance of the I to this principle in all but the top.

Independence Jamestown Inkerman Judgment

The capital loop, or 8th principle, is found as an essential element in

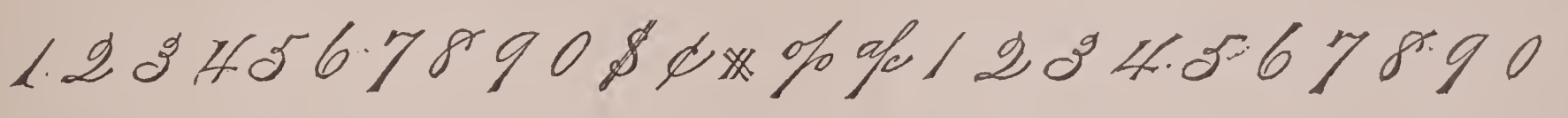


In the capital loop, or 8th principle, another oval may be made within the large turn at the top, but for practical purposes the letter is perhaps better without it, and may be simplified even more, as in the N below.



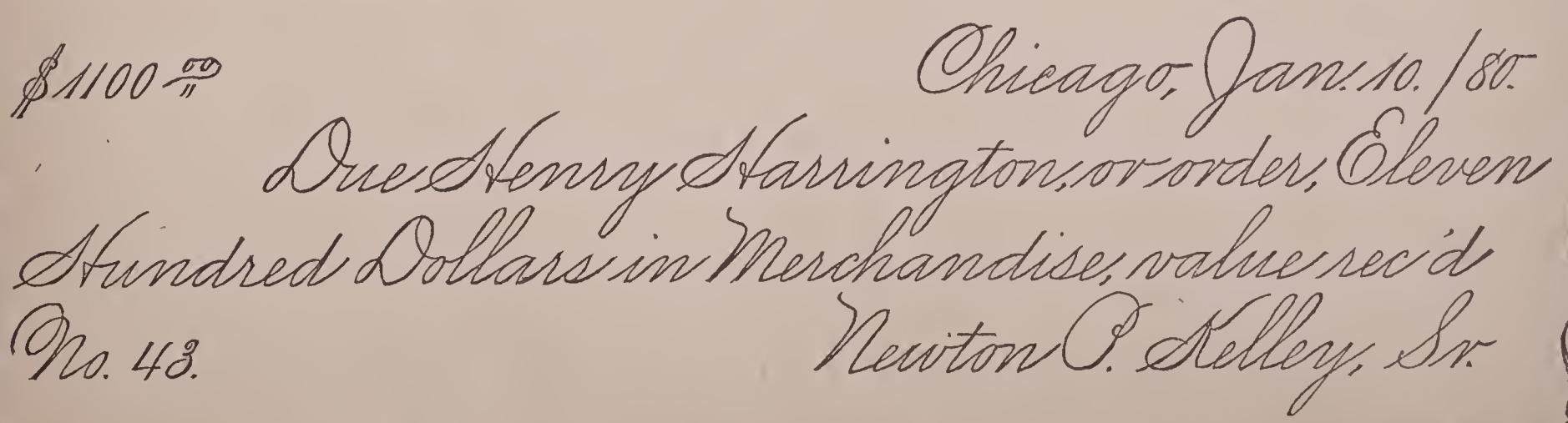
FIGURES.

Make figures small, neat, and of form exact. Each figure must show for itself, and cannot be known by those which precede or follow it, as is the case with letters. The common tendency is to make figures too large and coarse. Mind the ovals in figures and have them full and round. The chief excellence of the zero lies in its roundness; the 3, 5, 6 or 9, without care in making the ovals, may degenerate into a straight line, or simply a meaningless hook, which it would hardly be safe to use in expressing sums of money, ordering goods, or the transaction of other business.



COPIES FOR PRACTICE.

Having proceeded thus far in the study and practice of writing, and having obtained the proper control of the pen through the movement exercises, all that is necessary now in order to secure a good handwriting, is continued and well-directed practice.



ORNAMENTAL Penmanship.

CHARMING and fascinating are the graceful and harmonious curves produced, when, wielded by some trained and skillful hand, the pen becomes an instrument of beauty. As by the power of speech, men may pass from the common tone of conversation up to the melodious strains of music, or may soar in flights of oratory into the sublime, until the multitude is entranced; so the capabilities of the pen are not limited to the common uses of life, but may take on forms of beauty in elegant outlines of bird, or landscape, or graceful swan or bounding stag.

Ornamental writing is not a practical art, and has no connection whatever with the practical business of life. It is in the realm of poetry. The imagery of graceful outlines must first be seen by a poetic imagination. While the great masses may acquire a good style of plain, practical penmanship, few have the necessary conception of mind, combined with the skill and dexterity of hand to become successful ornamental penmen.

The ornamental pages which follow are given, not as models for imitation or practice by the learner, but merely to show the possibilities of the pen in the hand of a master, and as a fitting closing to this, our chapter on penmanship.

To any one who may have an artistic quality of mind, and delights in beautiful lines and harmonious curves, these pages of ornamental penmanship will serve as models for practice and imitation, and every attempt at such an exercise as the one on this, or the following pages, will give greater strength and freedom of movement, and better command of the pen, so that it will conduce to an easy, flowing and elegant style of plain business writing, while affording a most pleasant and profitable employment in the cultivation of the taste.

Various beautiful designs or pictures may be made with the pen, in the hands of one that possesses the skill of a penman and the eye of an artist.

BUSINESS FORMS.

In the transaction of business, men have found it necessary to adopt certain forms or written instruments which are passed from one party to the other as evidence of the transaction, or intention of the parties. These are called *Business Forms*, and are in such extensive use that every person should become familiar with their form and peculiarities, no matter how limited their business experience may chance to be, and no one should presume to affix his signature to such documents without fully comprehending the meaning and responsibility of the act.

For the sake of convenience and readiness of reference, as well as uniformity, accuracy and legibility, most of the forms used in business are printed, leaving blank spaces for names, amounts, dates, etc., which are filled in with pen and ink to suit the requirements of each case.

These forms are then arranged in tablets or pads, or bound into books, and are detached as they are needed.

It is the design in the few pages following, to so acquaint the reader with the various business forms and their peculiarities, that he will be able to write out a document in correct manner, either with or without the printed blanks, and will at the same time understand the legal significance of such acts.

These forms consist of *Bills, Receipts, Due Bills, Notes, Orders, Checks, Drafts, and Bills of Exchange.*

BILLS.

A Bill is an itemized statement of goods bought or sold, or labor or services performed, together with the price of each article, the amount of the whole, date, etc.

The heading of a bill should consist of the name of the city or town, state, and date, and in many cases, especially in professional bills, the name and number of the street is also placed above the name of the city, but perhaps the more general custom is to place the number and street under the name of the firm, although this is not theoretically so correct. The name of the person or firm to whom the goods are sold or for whom the service is performed, is placed at the left, and in case of a non-resident, it is well also to insert the address.

When a bill is made for labor or services, the name of the person rendering such service should be preceded by To and followed by Dr., while in case of goods sold, it is now quite customary to use the words "Bought of."

The custom is now common, of placing the advertisement beneath the name, thus causing the bill head to bear the business card of the person or firm issuing it.

Among merchants it is customary to have printed on the bill head the terms of sale and discounts allowed, together with rules in regard to rebates, etc.

FORM OF A BILL FOR SERVICES.

27 N. Charles Street,

Baltimore, Md., May 15, 18 .

Mr. William Johnson,

To SAMUEL B. MATTHEWS, Dr.

ATTORNEY AT LAW AND CONVEYANCER.

Mar.	7.	For Examining Abstract of Title,	10				
Apr.	20	Counsel in case vs. Moore,	50				
		" Expenses, Trip to Washington in above case	9	60		69	60

Received Payment,

Samuel B. Matthews.

The dates on the left of the bill are used to show when each service was performed, but in case the bill is rendered immediately after the labor has been completed, no date is then necessary here, as the date at the head of the bill will suffice. If labor is charged for by the day or hour, the number of days or hours and the price of each must be put down. When the bill consists of one item only, it should be placed in the total column, but when several items, their sum only should be extended into this column, as in the above bill. When the bill is paid, it should be receipted by writing *Received Payment*, and signing the name, by the maker of the bill, and is then passed over and belongs to the party paying it, and should be carefully preserved as his receipt.

In making out a bill of any kind, it is always best to observe those conditions which give perspicuity to the writing. Any paper that is neatly drawn has a certain prestige as compared with such as are rendered barely intelligible, either from bad or careless writing, or have their sense killed by brevity. Every item should appear full and plain, and if there be occasion for expressing numbers and prices in the body of the bill, as already indicated, these ought to be so written in, as to be easily read and understood. Sufficient room must be taken to write the matter in so that no part of it may be mistaken.

If indeed it be necessary to economize space in the body of the bill in order to set down all that is desired, the writing must of course be smaller and the lines closer together. In a bill of goods, which is made similar in form to the above, the price of articles that are enumerated in a single line is sometimes written immediately above each article in small figures, then the several amounts are added together and set down in the column in which the sums of items are shown.

To avoid much crowding of matter in small space, it is usual among most business men to have the form of the bill head printed upon paper of different sizes, large as well as small. Generally the same form is printed on longer sheets, without any increase of width.

Much time is absorbed every day in most departments of active business, by reason of careless or inaccurate making out of bills. The sending back and forth to have bills corrected or explained, often affords an excuse for delay in the payment of a bill, and sometimes produces unpleasant friction between business men as well as the disadvantages which arise from lack of prompt settlement.

FORM OF A MERCHANT'S BILL.

All Claims for Damage or Shortage must be made within 5 days from the receipt of the Goods.

Folio 214

Salesman W. H. M.

Chicago, February 10, 18 .

Messrs. Thompson & Smith
Schoolcraft, Mich.

BOUGHT OF **FRANKLIN MACVEAGH & CO.,**

WHOLESALE GROCERS,

Terms: Cash.
Discounts: Two per cent if paid *at our office* strictly within 10 days.

5 boxes Toilet Soap,	3.80	19				
10 bags Servian Prunes 1000#	.07	70				
1 case Cal. Smoking Pot 40½ 100#	.35	35				
1 bbl. N. O. Molasses, 42 gal.	.86	36	12		160	12
Int. on ½ bill for 63 days 8%					1	12
Received Payment,					161	24
By Note 60 ds.		81	18			
" Cash		80	06			

Franklin MacVeagh & Co.
Per Bartlett

When a bill has been paid by note, or otherwise than by cash, it should be so stated on the bill. As in the above bill one-half is paid by note and cash given for the balance. Instead of allowing the note to draw interest, the merchant usually prefers to include the interest in the face of the note, and then have the note written without interest. In this case the interest must be charged in with the goods as in the above bill. Wholesale merchants and jobbers send a bill with each purchase. Retail merchants usually render a bill on the first of each month for the past month's purchases.

When bills have been rendered for goods sold from time to time during the month, it is customary where settlements are made monthly, to render at the close of the month, what is called a *Statement*. This is a synopsis of all of the bills rendered during the month, showing only the total amounts of the several bills, together with the dates, etc., but not specifying the various articles sold. This synopsis of the monthly account enables the merchant to check over the various purchases and readily ascertain the correctness thereof before settlement.

Receipts.

When money is paid for the settlement of debt, or to apply on a debt or claim, for the payment of rent, or for payment advanced on a contract, a receipt should always be taken. Never fail to take a receipt unless you have some other evidence of payment so that a receipt becomes unnecessary. Parties may die, witnesses move away, and memory fail, and then, in settling up the estate, you may be put to trouble and loss unless armed with a receipt.

As a rule, every one having business with others, whereby money or its equivalent is passed, should require a receipt, which ought to be quickly given, as a matter of course. Do not ask any one if he will have a receipt for value; render it at once without words.

FORM OF A RECEIPT.

Denver, Col. July 2, 18 .

Received of John Wilson

Eighty Four and 36/100 Dollars

in full of all demands to date.

$84.36

Smith & Brown.

A receipt written with pencil is legal, but a prudent and careful business man would hardly give a receipt in pencil. Never fail to have a receipt properly dated, as it is frequently of great importance to know *when* a payment was made. The receipt should state clearly and fully what the payment was made for; if on a contract or note, specify what contract, or note; if for rent, state for what premises, and *from* what date *to* what date the rent is paid.

FOR PAYMENT ON A CONTRACT.

$500. Pittsburgh, Nov. 18, 18 .

Received of Watson D. Brown, Five Hundred Dollars, being the first installment paid on a contract to build for him a brick dwelling house at No. 938 Vine street.

Colburn & Dewey.

FOR MONEY TO APPLY ON ACCOUNT.

$100. Omaha, Neb., Jan. 10, 18 .

Received of John W. Smith, One Hundred Dollars, to apply on account. H. M. Winslow & Co.

IN FULL OF ALL DEMANDS.

$38.65. Detroit, Mich., Jan. 16, 18 .

Received of Peter Hind, Thirty-Eight and 65-100 Dollars. in full of all demands. J. W. Hunter.

FOR RENT.

$25. Columbus, Ohio, May 1, 18 .

Received of H. D. Southworth, Twenty-Five Dollars, for rent of dwelling No. 187 Elm street, from May 1st to June 1st, 1883. James S. Goodrich.

TO APPLY ON A NOTE.

$150. Richmond, Va., June 1st, 18 .

Received of Wm. L. Irwin, One Hundred and Fifty Dollars, to apply on his note for $600, due August 3d, 1883.

James Duncan.

RECEIPT FOR STOCK TO WINTER.

PARKER, Ill., Nov. 26, 18 .

Received from Jackson Wood, ten head of horned cattle, namely: four cows and six young oxen, together with three horses, and five swine, which I promise to keep through the winter and feed with good hay, corn, etc., and return in good condition, on the fifteenth day of April next, casualties excepted, he paying me eight dollars each for the cattle and horses, and one dollar and fifty cents each for the swine. Witness my hand. JOHN SCHRODER.

RECEIPT TO GUARDIAN FOR PAYMENT ON ACCOUNT OF HIS WARD.

$120. MILWAUKEE, Wis., May 31, 18 .

Received from John Bell, guardian of Harrict Landon, one of the minor children and heirs of Joel Landon, deceased, One Hundred and Twenty Dollars, in full for board and tuition of said Harriet Landon, from March 1, 1884, to date.

BENJAMIN SIMMONS.

TO EXECUTOR FOR PAYMENT OF A BEQUEST.

$2,000. MONTGOMERY, Ala., Dec. 24, 18 .

Received of Edwin Boomer, executor of the last will and testament of Warren Sizer, deceased, the sum of Two Thousand Dollars, in full of a legacy bequeathed me by said last will and testament. SAMUEL KANE.

FOR A NOTE.

$275. PROVIDENCE, R. I., May 25, 18 .

Received of Geo. D. Woodworth, his note at thirty days, for Two Hundred and Seventy-Five Dollars, in full of account.

S. D. LONG & Co.

FOR INSTRUCTION IN MUSIC.

LAKE ZURICH, Ill., July 18, 18 .

Received of Charles Barber, the sum of Ten Dollars, in full of all demands on account of instruction in music.

M. E. WINTER.

AGENT'S RECEIPT TO HOUSE OWNER FOR PAYMENT ON ACCOUNT OF REPAIRS.

CHICAGO, March 26, 18 .

Received of Ogden Whitcomb, Fifty Dollars, for painting and calcimining house at Hyde Park, and commissions for superintending same. BLANK D. BAR.

FOR MONEY PAID ON AN INSURANCE POLICY.

CHICAGO, July 25, 18 .

Received of August Fischer, the sum of Three Dollars and Seventy-Five Cents, in full on insurance premium in A. G. Insurance Co., No. 10,549. CHARLES RAY.

PART PAYMENT ON INTEREST NOTE—BORROWED MONEY.

SPRINGFIELD, O., July 19, 18 .

Received Nineteen Dollars of the Twenty Five Dollars due on Anthony White's note of Five Hundred Dollars, to order H. Banker; said $25 being due Jan. 19, '84, balance, $6, to be paid Jan. 20. CHARLES GREENOUGH.

FOR PAYMENT OF PURCHASE MONEY.

Know all Men by these Presents:

That I, Albert Piper, of Geneva, hereby acknowledge the receipt from Abner Pick, of Batavia, of Six Hundred Dollars, being the last payment, and in full, of twelve thousand dollars, by said Abner Pick paid as the consideration of the purchase of a certain tract and parcel of land situate in ——— etc., (as in the agreement, bond or conveyance described).

That the entire sum of the six hundred dollars aforesaid, and every part thereof, I do, by these presents, for me, my heirs, executors, and administrators, acquit and discharge said Abner Pick, his heirs, executors, and administrators forever.

In witness, etc. ALBERT PIPER.

ANOTHER.

Received this fifth day of November, of the within named Abner Pick, the sum of Six Hundred Dollars, being the full consideration and purchase money within mentioned remaining to be paid me.

Witness: George Whitney. ALBERT PIPER.

LAW GOVERNING RECEIPTS.

A RECEIPT is not certain proof of payment. It may be inoperative from mistake or fraud, and is open to explanation or contradiction. In this respect releases differ from receipts. A release cannot be contradicted by evidence, except on account of fraud, but if the words are ambiguous, the law permits the introduction of evidence that the meaning may be determined.

An entry in the books of the creditor showing a payment is not a receipt.

A release is in the nature of a contract, and must be taken to mean what it has set down in writing, unless for reasons already indicated. A receipt that contains any writing to the effect of an agreement as to the use to be made of the sum paid — as if it be paid beforehand on the score of future transactions—is legal, and not to be modified by parol evidence.

Where a receipt is taken for a note received in payment of an account, it will not always constitute a defense to an action on the account, unless it should be proven that the creditor consented to take the note in payment, and assume the risk of its being paid.

A receipt for the consideration money in a deed of real property is generally conclusive as against the seller and his privies.

Where a payment is made in a particular kind of money or a promissory note of another person, it is frequently so specified in the receipt. In most states, it is presumed that negotiable paper is received on the rule or condition that it shall not work a discharge of the demand unless it shall prove good and satisfactory. If such paper given in payment turns out to be dishonored, the creditor is entitled to return it, and demand to be paid again. If the receipt does not specify an absolute acceptance, it is subject to explanation, and the creditor may contradict it by proof, and show that the money, note, or check given as payment, was afterward found to be counterfeit, or check on a bank that was insolvent though not known to be so by the parties.

A receipt "in full of all demands" means what it says; it settles all demands or accounts on both sides.

An attorney's receipt that was given for securities he was to collect and account for, has been held as presumptive evidence of the genuineness and soundness of the securities.

Bank Checks.

CONVENIENCE and safety, as well as other considerations, induce most business men and firms doing a considerable cash business, to keep an account at the bank, and near the close of each day's business, deposit the bulk of the cash receipts for the day, reserving a sufficient sum on hand to meet the immediate needs of evening or morning. This extensive use of the bank as a place of deposit, has brought into equally extensive use the Bank Check as a method of payment, until it would now be exceedingly difficult if not impossible to transact the business in the great centers of trade, if all payments were required to be made in currency and coin, handled and counted.

FORM OF A BANK CHECK.

No. 1263 Chicago, December 18, 18__

THE Commercial National Bank
OF CHICAGO.

Pay to the order of Daniel P. Richardson,

Seventy Eight and $\frac{25}{100}$ Dollars.

$78.25 James A. Raymond.

The merchant, having a deposit in the bank, and being supplied with a book of blank checks, writes out a check for the payment of his obligations. The person receiving this check may transfer it by indorsement to another (see Indorsements), and thus it may pass through several hands, and discharge several debts, before it finds its way to the bank on which it is drawn, and is then charged up to the merchant and canceled.

The person who writes the check is called the drawer, the one to whom it is made payable is called the payee, and the person who writes his name on the back of it is called the indorser.

In filling out a check the amount should be expressed in figures at the margin and also in words in the body of the check, as a guard against errors. If the words expressing the amount do not fill up the blank space entirely, a dash or heavy wave line should be used to fill in, thus preventing any dishonest person from raising or changing the amount of the check.

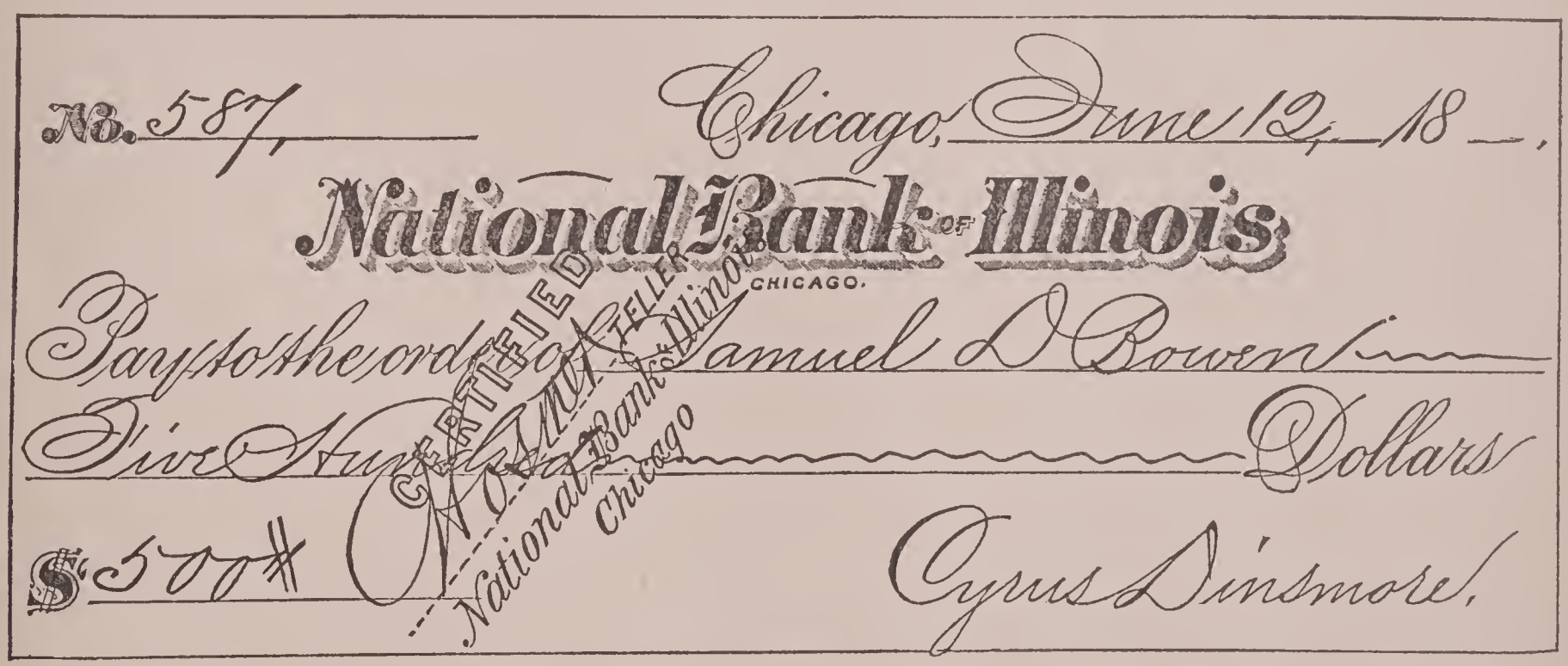
Should the person receiving a check not desire the money, he may present it at the bank, and have it "Certified." By this act of certifying, the bank promises or obligates itself to pay the check, whenever presented.

After the checks have been canceled by the bank they are, at stated intervals, usually once a month, returned to the drawer. These canceled checks are then called vouchers, or evidences of payment, and should be carefully preserved by the depositor as his receipts. Hence many business men prefer to pay by check, than by currency or coin, and are in such cases not so particular about a receipt. All checks should be numbered for convenience in describing them, and the numbers should continue in consecutive order, as long as the form remains unchanged or until the signature is altered. In business, bank checks are always spoken of and treated as cash, the presumption being that the drawer has money on deposit to meet his check when presented.

CROSSED CHECKS.

In England, where there is no bank note of a less value than £5 ($25), a great use is made of checks;

FORM OF A CERTIFIED CHECK.



and it is no unusual thing among the small tradesmen to meet checks which have been in circulation some months. This being a recognized fact, the banks pay without difficulty or question all ordinary checks presented at their counters, made payable to "cash," or "bearer," or to a person. In the case of such checks, identification is, at least in the large towns, never asked for.

This facility of having checks cashed, evidently required a modification. A check for a large amount might easily be stolen or lost. Hence arose the system of crossed checks, which has proved of great value and convenience, and which may be thus briefly explained:

Supposing that A wishes to send B a check for $1000, and is doubtful of the honesty of his messenger. He knows that B banks with, say, the Merchants' National, of Boston. He makes out the check as usual, and then writes across it Merchants' National Bank, of Boston.

No. 1.	MERCHANTS' NAT. BANK.	Boston, March 4, 18 .
First		National Bank,
Pay to the order		of Charles Browning,
One Thou		sand Dollars.
$1000		Wm. Anderson.

Under the English system, A's bank will only pay this check when presented by or through the Merchants' National Bank.

The ordinary way is to cross a check so that it may be paid through any bank. This is done by writing ——— & Co. instead of the name of a particular bank.

The advantage of the system will be at once evident. A stolen check, if crossed, is of no use to the thief. Thieves, at least of the kind who would steal a check, have no bank account, and if they had, it would be all the same, for the check known to have been lost or stolen would be at once traced to the depositor.

The system has received the sanction of various Acts of Parliament, intended to protect banks refusing to pay a crossed check over their counters, when presented even by the person to whom it is made payable.

Frauds in checks by forgeries and alterations, often depend upon poor styles of checks, poor paper used, and awkward filling out.

CERTIFICATE OF DEPOSIT.

Should a person depositing money in a bank not desire to draw it out by check, he may receive from the bank a *Certificate of Deposit*, showing date, name of depositor, and amount of deposit in the following form:

FORM OF A CERTIFICATE OF DEPOSIT.

Certificate of Deposit

$ 200 [illegible]

Union Bank

PAW PAW GROVE, ILL. May 21st 18__

Louis M. Palmer has deposited in this Bank

Two Hundred Dollars.

payable to the order of himself

on the return of this Certificate properly endorsed

No. 2050

Wm C. Johnson Cashier

LAW GOVERNING BANK CHECKS.

Checks are to be presented for payment without unreasonable delay.

There is no payment by giving a check unless the check is paid.

The party on whom a check is drawn is obliged to honor it if he has funds belonging to the drawer in hand. Until dishonored it must be regarded as payment.

The drawer of a check has no occasion to complain of the person (holder), to whom he has given a check, for not exercising diligence in presenting it at the bank, because, if the bank fails after he could have got his money on the check, the loss is sustained by the holder.

If the bank before he presents his check pay out all the money of the drawer, on other checks, he may then look to the drawer.

A bank must know the writing of its depositors. If it pays a check that is forged, it is liable for the loss.

If a check be drawn when the drawer neither has funds in the bank, nor has made any arrangement by which he has a right to draw the check, the drawing of it is a fraud.

A check not drawn within the state where the bank is situated, is subject to the law governing bills of exchange,—the holder of it must protest in writing, usually through a notary, against all parties liable for any loss or damage by the non-payment of it.

Joint depositors must join in a check, and if any of the number absconds, the remainder may draw the money by permission of a court of equity.

The drawer of a check is not bound with and for another, as is the drawer of a bill, but a principal debtor, like a maker of a note.

An ordinary check is made payable to a certain person or bearer; this is to guard against loss or theft, since no payment will be made unless the payee writes his name on the check.

If a check is paid by a bank before receiving notice of the death of a drawer, the bank is not blamable or responsible. If a check is given in prospect of death, it must be presented and paid while the donor is alive, because his death countermands his check. Otherwise, the holder of a check would present it for acceptance to the legal representatives of the deceased.

Due Bills.

WHEN an account or claim has been adjusted, and the amount due from one party to the other definitely agreed upon, an acknowledgment of this indebtedness may be made in writing, to prevent further controversy, and this written acknowledgment of indebtedness is called a Due Bill. If a due bill is payable in merchandise or property, it should state the exact quantity and quality, for if nothing is said as to how payable, it is presumed to be payable in money. The date also should be given.

The words *or order* may be inserted in the due bill immediately after the name, and would thus make it negotiable by indorsement, the same as a note.

FORM OF A DUE BILL.

$150. Boston, July 16, 18 .

Due Samuel M. Jennings, on demand,

One Hundred and Fifty Dollars.

James Berry.

This form of paper differs from a promissory note, which latter usually contains a promise to pay, at a time specified therein, a sum of money to a certain person, or to his order, for value received.

PAYABLE IN MERCHANDISE.

$80. OMAHA, Neb., Jan. 10, 18 .

Due A. S. Worsdell, or order, Eighty Dollars, payable in merchandise at my store. JAMES HUME.

PAYABLE IN WHEAT.

MONMOUTH, Ill., May 10, 18 .

Due Henry Seymour, or order, One Thousand Dollars, payable in No. 1 Spring Wheat, at the market price when delivered. EDWARD A. HUDSON.

I. O. U.

Another form of acknowledgment of a debt is used, and is known by the abbreviations I. O. U. It is different from a promissory note, being merely evidence of a debt as a result of a contract previously made. A miniature form of such an obligation is as follows:

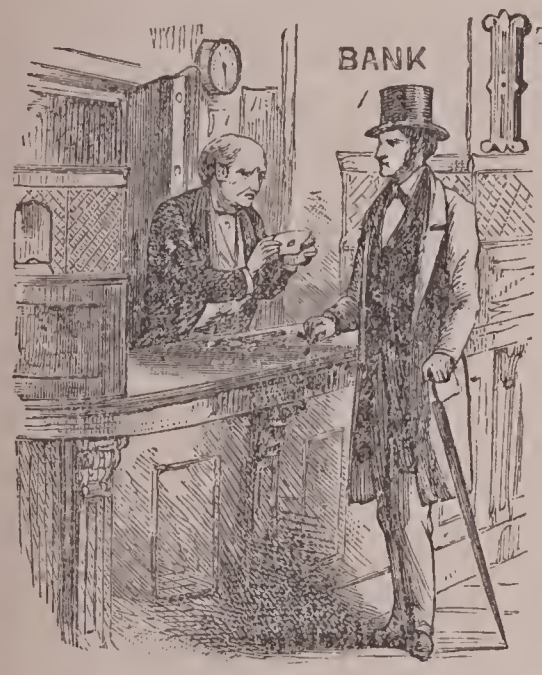
$30. BAY CITY, Mich., March 12, 18 .

John Smith, Esq.,

I. O. U. Thirty Dollars.

JAMES HOOD.

Promissory Notes.



It would be impossible to carry on the enterprises and business of the world without credit. Credit, or mutual faith, lies not only at the foundation of business, but also of our government and institutions, and it is only when, by over enthusiasm, speculation, and the extreme use of credit, that the people have their faith shaken, and panic and disaster ensue.

This credit, which forms a portion of the capital of almost every business man, does not always consist of book accounts, but may take on the tangible form of a written promise to pay, and is then called a promissory note.

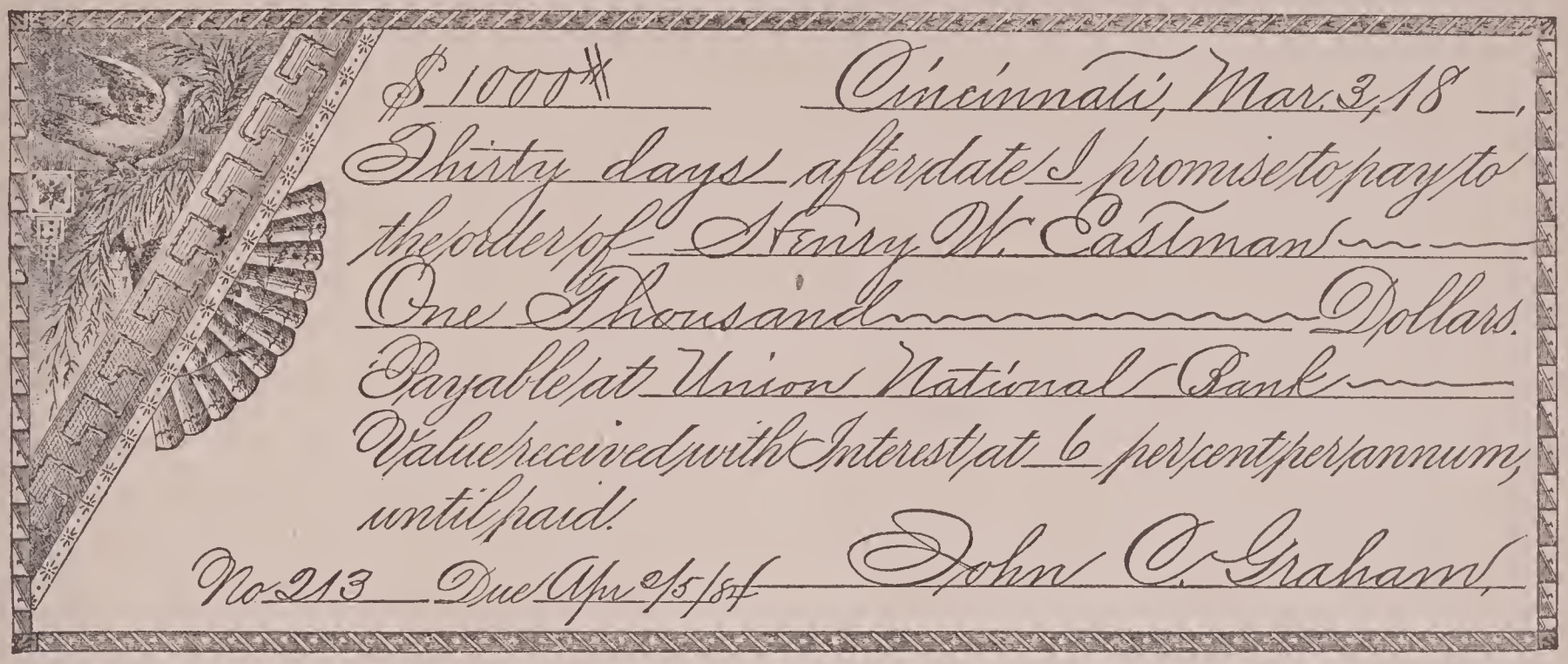
The extended and varied use of this form of credit is beyond all power to estimate or control. It represents all forms of service, all articles of merchandise, and especially all great works and interests, as manufactories, ships, railroads, public and private contracts, as well as public debt. A housekeeper's passbook is balanced by a note at three or six months, while the retailer buys goods of the wholesale merchant and settles with his note; the jobber receives notes from the wholesale merchant, and the former gives notes to the manufacturer or producer; notes are given for raw material by the manufacturer, while the factor is already under acceptance to the grower, and the notes of the latter are given to the bank long before his crops are gathered. The sugar from Havana or our own shores, has notes in sets predicated on it before it is rolled in hogsheads from the vessel to our wharves, and it continues to accumulate notes as it passes through on its way from the refiner to the grocer. After it has gone into the mouths of consumers, its notes are still afloat, not settled, in the market. The millions of notes thus carried on the market, serve to represent untold millions of dollars of value, no matter what the form, nor what the condition. Notes may be for services yet to be performed, goods to be delivered, or even for some form of life as yet unborn.

This form of credit is spread out all over the region of active business, and serves between man and man as currency. It passes current like the notes of a bank that does not suspend. It differs from bank bills only in this, that it is transferred by indorsement, and matures at a stated subsequent time, while the indorsers are liable to the owner in case of non-payment by the maker. It is a species of currency forced upon the sphere of active life from actual necessity, and its use in good faith has been of incalculable advantage to the civilized world. For example, a man of sound mind, of known integrity, and strong will, may be credited and intrusted with a large sum of money, for which he simply gives his promissory note, even without security. His creditor has confidence in him because he is the possessor of reason and common sense, and has a disposition, coupled with a will to meet all obligations, or force an undertaking to success.

A promissory note is a written or printed promise to pay a certain sum of money at a specified time, or on demand, to a person therein named, or his order or assigns, or to the bearer.

The person signing the note is called the maker, and the person to whom it is made payable is called the payee. The person who writes his name across the back of the paper is called an indorser. Notes are said to be negotiable when they are transferable from one person to another by indorsement, and when indorsed it is in some respects similar to a bill of exchange.

FORM OF A NEGOTIABLE NOTE.



A form of a Negotiable Note is here shown, by which may be seen at a glance the difference between that and a Note not Negotiable, as appears below. The first is written "pay to the order of H. W. E." (otherwise "pay to H. W. E. or bearer"), while the other reads "pay to John D. Henderson." The negotiable note is payable to the person holding it at the time of maturity, but the one not negotiable is payable to the particular person in whose favor it is drawn.

A Produce Note is one written to the purpose of a delivery at a certain time and place, or on demand, certain named articles of value, at current rates, and to a limited amount. The maker of such a note must be prepared to prove that he was ready at the time and place expressed therein, and continued ready, to deliver the articles; otherwise, he may have to pay their value in money. A produce note may be assigned.

A note that is given over and above the principal

NOTE NOT NEGOTIABLE.

$157.60. Cincinnati, March 7, 18 .

Sixty days after date I promise to pay to John D. Henderson, One Hundred Fifty Seven and $\frac{60}{100}$ Dollars. Payable at my office.

Value received. C. W. Wetherell.

itself, is called a Collateral Note. It is additional to something else, and given as security.

A promissory note that is written in the customary form, with the addition of a power of attorney to confess judgment for the amount specified, is called a Judgment Note.

In the settlement of a defendant's estate, a sealed note must be paid before one without a seal. A judgment note has a seal, and is executed in presence of attesting witnesses. When a judgment note becomes due and stands unpaid, a suit may be brought on it, and judgment obtained at once, upon which execution may

DEMAND NOTE.

$100. St. Paul, Minn., July 16, 18 .

On demand I promise to pay James Colman, or order, One Hundred Dollars, value received, with interest at 6 pr. ct.

J. B. Cummings.

issue. It usually contains many stipulations as to the time of confessing the judgment, against appeal, and other remedies for setting the judgment aside, etc.

When a promissory note is written payable on demand, it is called a Demand Note, as shown by the form. Such a note, not known to have been dishonored, is regarded overdue after a reasonable time, and, in determining what is a reasonable time, the circumstances of a case must be considered. In some states the period within which the note shall not be overdue, is fixed by statute.

When there are two or more makers to a promissory note, it is called a Joint and Several Note. The makers may be liable thereon jointly, or jointly and severally —each one separately—according to the tenor of the note. (See form.) A Joint Note reads "we promise to pay," etc., value received, and is signed by two or more persons. Or it may be written, "we promise to

JOINT AND SEVERAL NOTE.

$250. Louisville, Ky., Oct. 22, 18 .

Six months after date, we or either of us, promise to pay Hiram Pointer, or order, Two Hundred & Fifty Dollars, value received, without interest.

Isaac Benson.

Geo. S. Thomas.

pay," and signed John Smith, principal, and William Jones, security. By the terms principal, and security, are shown the relation of the makers to each other; these terms having no other effect. A note beginning, "I promise," and signed by one partner for his copartners, is a joint note for all.

Notes are usually drawn with the words "value received" written in after the amount; and sometimes are used to begin with, as "Value received, I promise to pay," etc. The phrase should be written in every note, but is not necessary. If not written it is presumed by the law, or may be supplied by proof.

LAW GOVERNING PROMISSORY NOTES.

A NOTE is payable at all events, not dependent on any contingency, nor payable from any special fund. And it is payable in money only.

No particular form is necessary to promissory notes. A promise to pay the money, or be responsible for it, is quite sufficient.

A promissory note is never made under seal. It is not complete until it is delivered. If any contingency that affects the promise itself appear on its face, it is not negotiable.

In drawing the note, the payee must be designated, unless the note be made payable to bearer. It may read "I promise to pay to my own order," and then it would not be effective until signed and indorsed by the promisor.

If a note is not dated the time is computed from the day a knowledge of it is first gained. If there be any difference between the amount in figures and that written in words, the words control. A note does not bear interest until after it matures, unless so written.

One who cannot write should have a witness when he makes his mark.

Bank notes are a kind of promissory note, and issuing from an institution that is regulated by law, they do, by common consent, and for ordinary business purposes, serve as money. Bank notes or bills are good for the payment of debts, if not objected to by the person to whom they are offered, and on the ground that they are only promissory notes, and not legal tender.

The necessary consideration of a note or negotiable paper is that which confers some benefit upon the person who makes a promise or upon a third party at his instance or request; or some disadvantage or loss sustained by the one in whose behalf the promise is made. A note as a present is void for lack of consideration.

A note is void if procured from the maker while he was in a state of intoxication. If a note be given on Sunday, or if it be founded on fraud, it is void, unless in the hands of a *bona fide* holder, purchasing before maturity and without notice. One who has notice that a note is vitiated by fraud or upon legal grounds, and yet takes the note, he places himself in the same perilous position of the person he got it from.

A note is not negotiable when it is made payable to a certain person only. It may be transferred by assignment.

In most states a note that is not negotiable may be transferred by assignment, and the set-offs and defenses existing between the original parties go with it.

Payment must be demanded upon the last day of grace. If that day falls on Sunday or a legal holiday, the demand must be made the day before. Presentment of a note must be made by the holder or his authorized agent. A written demand sent through the post-office will not suffice. If no time is specified, a note is payable at once.

If a note be payable at a certain place, it must be presented at such place on the day it is due, in order to charge an indorser. Payment must be demanded during business hours at the place of business of the maker or at his house at seasonable hours, if no place is designated. In case of joint makers, the note must be presented to each one. No presentation is necessary if the maker has absconded; and in case of his death, it should be presented to the executor or administrator; or, if no such officer has been appointed, at the house of the deceased.

The maker of a note must pay it at maturity, or any time after, unless he has some defense in law or is barred by the statute of limitations.

A note that has matured, if not paid by three o'clock, should be put into the hands of a notary for protest, as that will be evidence that the note was duly presented for payment, and payment was refused.

Notice of non-payment, written or verbal, but well authenticated, should be given to the indorser of a note to hold him liable. Demand, protest, or notice, is not required to fix the liability of the maker of a note. If a note has been duly presented and payment refused, the notice should designate the fact in words, and should contain such description as would show its identity.

If a note be guaranteed by a party, such guaranty is equal to a promise to pay it, and the party is not entitled to notice; if not paid by the maker or debtor, it will be paid by the guarantor. In case of a guaranty of collectability, however, it is required that the holder shall use diligence without success.

Where a note is sent to a bank for collection, and the bank places the note in the hands of a suitable sub-agent or notary for presentment or demand, the bank is not liable for the default of such sub-agent or notary. In such case the sub-agent or notary becomes the agent of the holder of the note.

A note that reads "I promise to pay," and is signed by two or more persons, it is joint and several. The holder can sue either signer, or all jointly. If it reads, "We promise to pay," without words to the effect of a several responsibility, it is a joint and several note, and all must be joined in case of a suit.

A note that has been accidentally destroyed may be recovered upon adequate proof. If a note is lost or destroyed, notice must be given, and payment must be demanded the same as if the note was still secure in form.

In case of the loss of a negotiable note, equity alone will grant relief where the premises are not covered by statutory provisions; and the claimant must file a bill in chancery to enforce payment, indemnity being offered to the debtor.

A note given by a minor is voidable at his election, and of no effect until ratified by him when he arrives at full age.

Orders.

An Order is a written request from one person or firm to another, for the delivery of a sum of money or articles of merchandise. These orders are usually drawn by one merchant on another, or by persons in the same town or neighborhood, and are a kind of informal draft, not intended to be transferred by indorsement, nor circulate as do the several forms of negotiable paper.

The person or firm on whom an order is drawn, must in filling it, know that it is genuine, and the order itself should then be carefully preserved as a voucher, in case disagreements should ever arise.

ORDER FOR MERCHANDISE.

Racine, Wis., Aug. 17, 18 .

Messrs. Jones & Brown:

Please deliver to bearer, with bill, for me,

1 pr. Rubber Boots, No. 8.

2 prs. Leather Slippers, No. 7.

J. K. Lyons.

FOR MONEY.

Bloomington, Ill., June 19, 18 .

Mr. G. C. Duncan:

Please pay John Sanford, or order, Five Dollars, and charge to my account.

Daniel Henderson.

FOR GOODS STORED.

Chicago, May 18, 18 .

Empire Warehouse Co.:

Please allow the bearer, Leonard Jones, to remove ten cases of Dry Goods, stored by us in your warehouse.

Marshall Field & Co.

FOR MERCHANDISE NOT EXCEEDING A SPECIFIED AMOUNT.

St. Louis, May 27, 18 .

Messrs. J. M. Rice & Co.:

Please deliver to the bearer, Geo. Bartlett, such goods as he may select from your store, not exceeding One Hundred Dollars, and charge the same to my account.

James A. Hawley.

TO A BROKER FOR MINING STOCK.

Boston, April 1, 18 .

Harrison & Hart, Stock Brokers:

Please buy for my account and risk, ten shares stock in W. C. Copper Mining Co.

John Wright.

IN FULL OF ACCOUNT.

Ogdensburg, N. Y., May 25, 18 .

Messrs. Roe & Doe:

Please pay to John Jones, or bearer, Seventy-Five Dollars from your store, and hold this as your receipt in full of my account.

James Merit.

FOR LUMBER.

Marshall, Ill., May 16, 18 .

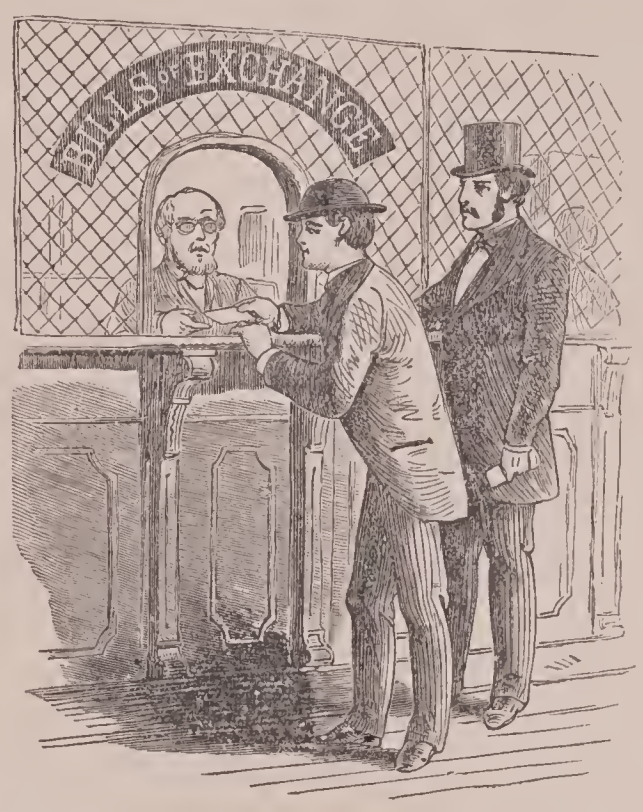
Mr. Edwin Booth:

Please pay Valentine King Fifty Dollars in lumber from your yard, and charge to my account.

J. Streeter.

DRAFTS AND BILLS OF EXCHANGE.

THE oldest class of commercial paper is the Bill of Exchange, which was originally a security invented among merchants in different countries for the more safe and easy remittance of money from one to the other, and has since spread itself into almost all pecuniary transactions. It may be defined as an open letter of request from one man to another, desiring him to pay a sum named therein to himself, or to a third person on his account; and by this method a man at the most distant part of the world may have money remitted to him from any state or trading country.



Bills of Exchange are used not only in remitting money from place to place, but also in collecting debts in distant cities and places. Thus the wholesale merchant draws a draft on his customer, payable to himself or to the bank, and forwards it to the bank in the town where his customer resides, for collection. The shipper draws a draft on the commission merchant, to whom he has consigned his live stock or produce, and discounts the draft in bank, thus receiving the money for his shipment before it reaches its destination. And the merchant, when pressed to meet payments, even draws a draft on his neighbor, with the understanding that he, the drawer, shall take up the paper at maturity, and by this use of his neighbor's borrowed credit is able to raise the necessary funds to meet maturing obligations.

The terms Draft and Bill of Exchange are almost synonymous, the real difference being that drafts are drawn on persons residing in the same state or country as the drawer, while bills of exchange are drawn on persons residing in a distant country, and were originally drawn in sets of three, and forwarded by different routes, so that in case one or two bills were lost in transmitting, the third would reach its destination and be paid. But with the modern and improved facility for transmitting commercial paper from place to place, the risk of losing in the mail has become so inconsiderable that the practice of drawing three bills has been largely discontinued. And the term bill of exchange has also been largely displaced by the more brief and ready term draft, which is now generally applied in business usage to the inland and foreign paper alike.

The person who writes the draft or bill of exchange is called the drawer, the person on whom it is drawn is called the drawee, and the person to whom payment is ordered to be made is called the payee. The address of the drawee is usually necessary in order that he may be found, and payment or acceptance demanded.

The presumption or theory upon which drafts or bills of exchange rest, is that the drawer has funds in the possession of the drawee sufficient to pay the draft, and a bill ought, therefore, to be so drawn as to imply an order to pay the amount specified.

Drafts which are drawn "at sight" are called Sight drafts, and are payable when presented, or when the drawee sees the draft. Thus, in the form given, when James H. Raymond, or whoever may be the holder, shows the draft to A. J. White & Co., it is then due and payable, and if payment is refused it is said to be dishonored, and is returned to the drawer, James Rollins. Drafts which are not payable at sight are called Time drafts, and are usually written "at ten days' sight," or "ten days after sight," or "ten days after date." In the form of a time draft given, the words "at thirty days' sight," mean thirty days after the draft shall have been presented to the drawee, John Thompson. If the drawee, John Thompson, is willing to pay the draft, he writes across the face of it, usually in red ink, when presented to him, the words "Accepted August 11th, 1884, John Thompson." This writing is called an acceptance, and the paper will then be due thirty-three days after this acceptance.

During this time, this piece of negotiable paper may

be indorsed over and pass through half a dozen houses, paying hundreds of dollars of debts before finding its way to John Thompson's place of business for payment at maturity.

The words "with exchange at par in New York or Chicago," are inserted in the draft for the purpose of covering the difference between the current funds of New Orleans and New York, or the cost of transmitting the money from the former to the latter city, either by means of drafts or by express. Thus, in the form given,

FORM OF A SIGHT DRAFT.

$ 219 40/100

Chicago, November 7, 18__.

At sight Pay to the order of

James H. Raymond

Two Hundred Nineteen and 40/100 Dollars

Value received, and charge to account of

To D. J. White & Co.,
Newburg, N.Y.

James Rollins.

No.

the face of the draft, $150, is due Marshall Field & Co., in Chicago, and whatever expense may be necessary in transmitting the money, or its equivalent, to Chicago, should be borne by the drawee, John Thompson, and this is exacted by the words "with exchange," etc.

The person on whom a draft is drawn must know that the signature of the drawer is genuine, and also that the amount as written in the draft has not been altered or "raised," for if he accepts a draft which has been forged or raised, he is liable on his acceptance in case the

FORM OF AN ACCEPTANCE.

$ 150 00/100

No. 416

Chicago, August 5, 18__

At thirty days sight Pay to the order of

Marshall Field & Co

One hundred and Fifty Dollars

at par in New York or Chicago With Exchange

Value received and charge to account of

To John Thompson
New Orleans,

Marshall Field & Co.
Pack

paper should afterward be sold to a person who is not aware of the forgery. The drawee may claim a reasonable time, usually a few hours, when a draft is presented to him for acceptance, in which to examine his accounts and ascertain whether he is indebted to the drawer.

The use of the draft in business transactions is much more convenient than money, which in some respects it represents. Let the following example illustrate: Suppose that A, of Chicago, sells and ships to B, of New York, 1000 bbls. of flour. He has the flour insured,

procures a bill of lading from the railroad company, and then draws a draft on B, of New York, payable to the order of the bank where A transacts his business. The draft and bill of lading are then pinned together, and with these A steps into his bank, where he obtains the money on his draft on the security of the bill of lading. By this means A has actually received payment for the flour before it has left Chicago. The bank charges a compensation for advancing the money, and afterward forwards the draft to New York for collection from B.

It is plain that all parties are accommodated and benefited by this transaction, although not a dollar has passed between B and A. A has received his pay for the flour much sooner than he could have possibly done were it necessary to wait until the flour had reached New York, and then until returns could have been received from B, while the compensation charged by the bank is much less than the express charged on the money from New York to Chicago, together with loss of time, delay and risk attending such transmission.

When three bills of exchange of the same tenor are drawn, they are numbered one, two and three, and are called a Set of Exchange. Each bill provides that it is payable in case the other two fail to reach their destination. The words "second and third unpaid," mean that in case the bills numbered two and three are unpaid, pay this the first, or if the first and third are not

A SET OF EXCHANGE.

1

Exchange for £1000. *New York, Jan. 25, 18* .

Thirty days after sight of this First of Exchange, (Second and Third unpaid), pay to the order of James S. Seymour, **One Thousand Pounds Sterling,** *value received, and charge to account of*

To Charles Lawson, Liverpool, England. *William C. Morse. No. 1670.*

2

Exchange for £1000. *New York, Jan. 25, 18* .

Thirty days after sight of this Second of Exchange, (First and Third unpaid), pay to the order of James S. Seymour, **One Thousand Pounds Sterling,** *value received, and charge to account of*

To Charles Lawson, Liverpool, England. *William C. Morse. No. 1670.*

3

Exchange for £1000. *New York, Jan. 25, 18* .

Thirty days after sight of this Third of Exchange, (First and Second unpaid), pay to the order of James S. Seymour, **One Thousand Pounds Sterling,** *value received, and charge to account of*

To Charles Lawson, Liverpool, England. *William C. Morse. No. 1670.*

paid, pay this the second bill, and if the first and second are not paid, pay this the third. These bills are then forwarded to their destination by different routes, or by different steamers, and in case the vessel bearing the first bill is lost, either the second or third will reach its destination and be honored.

But it is possible that two of these bills may thus be lost in the passage, and to provide against even such a remote contingency, the third bill is sent, and will probably reach its destination safely.

It may therefore be seen that it would be among the impossibilities to do the immense business which is now carried on in the commercial world between merchants of different states and countries were it not for the use of this instrument called a draft or bill of exchange.

By the use of the bill of exchange the trouble, hazard, expense and loss of time, which would amount in many cases to weeks and even months, of sending large sums of coins from one country to another, are nearly avoided, and would be entirely avoided were the exports and imports or sales and purchases exactly equal in value between the countries having commercial intercourse with each other. Not only so, but since a bill of exchange is payable in the coin or currency of the country where the drawee resides the inconvenience of changing funds from the currency of one country to that of another is also avoided. Thus, a draft drawn on a party residing in England is payable in pounds, as the pound is the unit of money there, or if the payee resides in France, it would be payable in francs, as a franc is the unit there.

LAW GOVERNING DRAFTS AND BILLS OF EXCHANGE.

As in the case of a promissory note, no partieular form is neeessary to a draft or bill of exehange. Most of the rules which apply to notes, bear the same relation to bills of exchange.

At any time before a bill beeomes due, the holder may present it to the drawee for aceeptanee, whieh must, in case of an inland bill, be by writing on the instrument; but in ease of a foreign one, it may be either written or verbal, but it is to be regretted that anything short of the usual, regular, and proper mode of acceptance in writing should, under any eireumstances, be considered an acceptance.

After acceptance, if a bill be not paid on arriving at maturity, the holder has a right of action against any, or either, of the parties whose names appear thereon anteeedently to his; but such right is subject to the eondition that he shall have presented it to the drawee on the day it became due, and that he gave reasonable notice of its dishonor or non-payment; that is, under ordinary circumstances, notice on the following day, or, to persons not residing in the same town, by the post of that day, or in case of a foreign bill, by the next ordinary post or conveyance, to all the parties whom he intends to eharge, or at least to him whose name was last plaeed on the bill, in order that the latter may give the like notiee to the party next before him; and so in suceession, eaeh party being allowed in turn a similar time for the purpose.

An original payee can only resort to the drawer. If the drawee refuse aeceptance,—the law will imply a refusal, unless he accepts at once, or within twenty-four hours after the bill is left with him for that purpose,—the drawer and indorsers are liable to make immediate payment, though the bill has not arrived at maturity; but notice of the non-aceeptance must be given, as before stated in reference to the case of non-payment. After this notice, the holder may hold it, and present it for payment when it comes to maturity, without waiving his right of recourse against the other parties.

A bill need not be presented for acceptance, unless it be drawn payable at a speeified time after sight or after demand.

Where the ceremony of presentment for aceeptanee is (exeept in the cases last mentioned) omitted, the bill must be presented for payment; and the same law of proceeding against the drawer and indorsers will then apply, as already stated in reference to the ease where an aceepted bill is presented for payment.

The most eommon form of a bill of exchange is for the drawer to address it to the intended payer or acceptor, who accepts it at once. It then becomes subject to all the incidents above mentioned in the ease of an aceepted bill.

It is always safest to protest a bill after its aeeeptance is refused.

After a bill has been protested for want of aeeeptance or payment, it may be aeeepted *supra protest* by a party not on the bill, to save the honor of the drawer or a particular indorser. Two or more persons may beeome acceptors *supra protest* for the honor of different individuals. An aceeptor *supra protest* is bound to pay the bill if it is not paid by the drawee.

Any material alteration of a bill of exehange vitiates the bill, and it cannot be legally enforced against any of the parties, unless the alteration be made before the bill be aeeepted, and also before it has passed out of the hands of the drawer.

Thus, if a bill be left for aeeeptanee by the drawer, and the drawee alter the note, either time, or amount of the bill, and then accept it, the alteration does not affect the validity of the bill, but if it be left for acceptance by a third party, and the drawee then alters and accepts the bill, the bill is vitiated.

Any alteration in the date, sum, time, name of drawee or payee, or appointing a new plaee of payment, is a material alteration. But any alteration made with the view of correcting a mistake does not vitiate a bill, provided it be made with the coneurrenee of all the parties.

If a drawee aeeepts a bill, and before he gives the bill out of his possession, corrects his aeeeptance, he eannot be compelled to pay it.

A bill given for an illegal eonsideration cannot be enforced by the drawer, but it may be enforeed by an innoeent holder, who had no knowledge of the illegal consideration, and who reeeived the bill before it was due.

The prineipal illegal considerations are those arising from usury, gambling, and smuggling.

A person under twenty-one years of age, whether aceeptor, drawer, or indorser, of a bill of exchange, cannot be sued at law, and compelled to pay, but if he draw a bill and transfer it to the third person, the third party may sue and eollect of the aceeptor.

If a banker or other person should reeeive a bill by post, they would not be required to present it until the next day.

The holder of a bill payable on demand has the whole of the banking hours of the next day after he reeeives such bill, within whieh to present it.

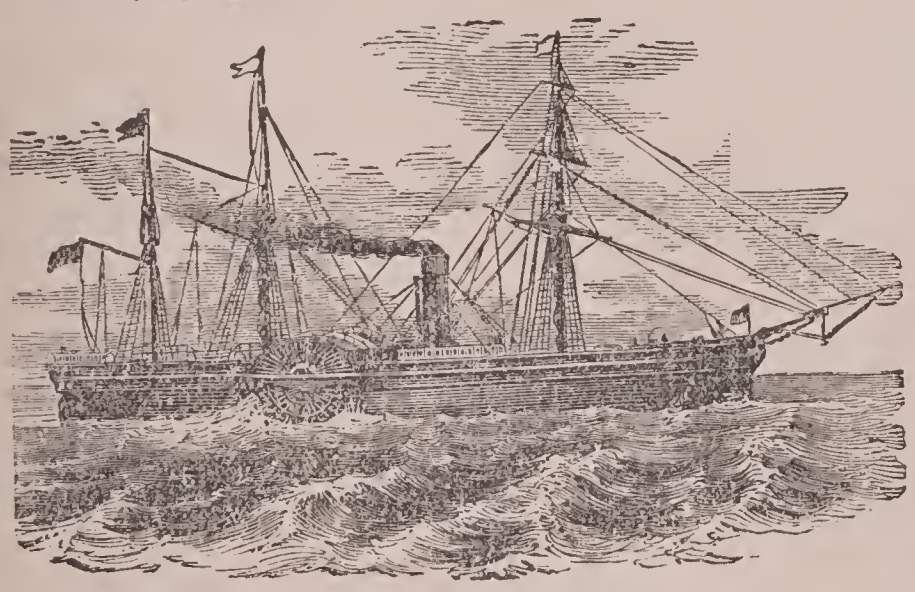
A finder of negotiable paper is under obligations to make reasonable efforts to discover the owner, and eannot use the property found until he has failed in his efforts. If he conceals the fact of finding, and appropriates the thing found to his own use, he may be charged with larceny or theft.

Where it is evident that words are wanting in a bill, sueh as are deemed necessary may be inserted afterward, and if any question is raised over them, the jury will deeide it. Misspelled words will not lessen the force of the bill.

If a draft is drawn on two persons who are partners, it should be presented to eaeh, as in this instanee one cannot bind the other; but if drawn on the firm, it may be aecepted by either one of the members.

If the drawee of a draft fails or refuses to pay it in aeeordance with its terms, the holder ean eome upon the drawer for payment.

CIRCULAR Letters of Credit.



TOURISTS in foreign lands, and Americans traveling abroad, on business, have been the means of calling into existence in this country *Letters of Credit*. To carry the necessary amount of money for one or more years' journey would not only be very inconvenient to the tourist, but unsafe, and in every new country with a different coinage this money would need to be exchanged for current funds, at a broker's office, another inconvenience and an expense.

Bills of exchange are not suited to the traveler's needs, as he must be identified at any bank where he desires to cash a bill of exchange, and in a strange land this is troublesome, if not impossible. Not only so, but he must draw all the money called for by the bill of exchange at one time. Thus, a traveler from America, having a bill of exchange on Paris for 5,000 francs must draw the amount when he arrives in Paris, and then, if he expects to visit Berlin, he may buy a bill on Berlin. But this entails an extra expense for exchange. And even if our American banks could sell the traveler a separate bill of exchange on London, another on Paris, another on Berlin, Rome, Constantinople, and all the principal cities of the Orient, this might prove an inconvenience to the traveler, as it would limit his expenditures in each city, if it did not decide the length of his stay. And it would be about impossible to provide against this on a long journey, by any forecast or calculation.

The Letter of Credit as adopted by our banks at the present time, obviates all these difficulties, and places the funds of the traveler as much at his disposal, wherever he may be, as though he were at home near his own bank.

The method of managing the finances on a foreign trip is about as follows: Having decided upon the amount of money necessary for the journey, the would-be tourist steps into any bank where Letters of Credit are sold, either in his own town or in the large cities, and purchases a Letter of Credit similar to the form on the following page, payable in pounds, in London, and addressed to a number of banks and bankers in all parts of the world, whose names will appear on the back of the letter.

The bank here then immediately notifies the London bank that such a letter has been issued, and for the issue of the letter the banks usually charge a small fee.

Armed with this document, he proceeds to London, and there finding his funds becoming short, he goes to the City Bank, or to any other bank, as well, and draws a draft on the City Bank of London, payable to himself and signed by himself, for whatever sum he may need, just as a depositor draws a check. The bank compares the handwriting and signature of the draft with the signature at the bottom of the Letter of Credit, and if genuine the amount is indorsed on

First National Bank of Chicago

No. 1739. Chicago, May 16. 18 .

Gentlemen:

This letter will be presented to you by Martin Beem, in whose favor we beg to open a credit with you collectively for the sum of Five Hundred **Pounds Sterling,** to which extent be pleased to furnish payments in sums as required, inscribing the amount so paid on the back of this letter. In reimbursement you will take his draft on the City Bank of London, inserting therein the date and number of this credit, which we engage shall meet with due honor.

Your charges are to be paid by the bearer hereof.

Requesting for him your best attention, we have the honor to be

Gentlemen,

£ 500.

Your obedient servant,

L. J. Sage,
Cashier.

This Credit is in force until January 1st, 18 .

Signature of

Mr Martin Beem.

This letter must be returned with the last draft

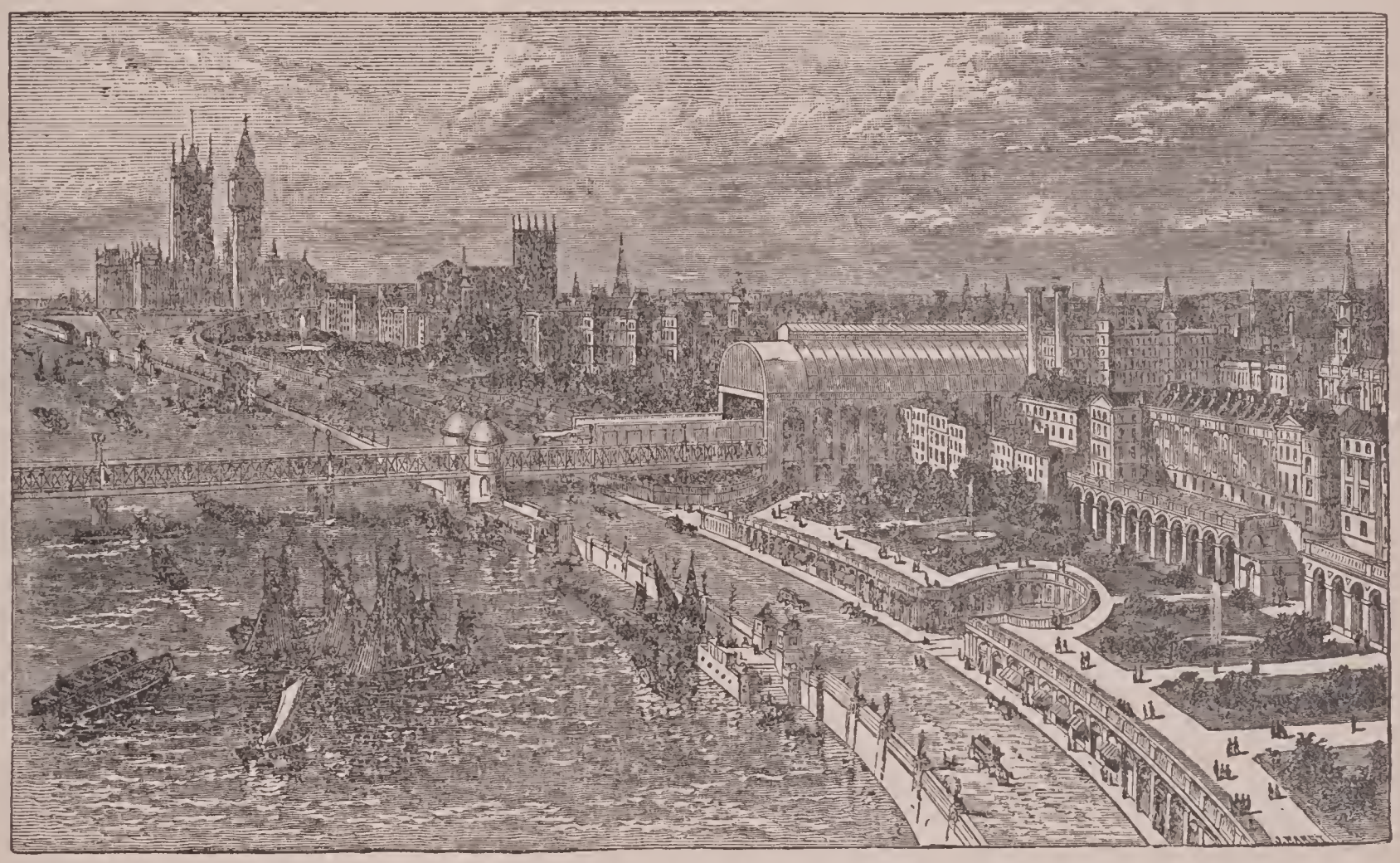
the back of the Letter of Credit, and the money is paid over, after deducting a commission of two per cent. In Paris, Rome, Constantinople, India or Australia, whenever the tourist needs funds, he repeats the above operation, of drawing on the City Bank of London, and the money is paid over to him, less the commission and five per cent interest for the time required in collecting the draft in London.

The drafts as they are drawn, are sent at once to the City Bank of London for collection, and are then charged to the account of the First National bank of Chicago. When the last draft is drawn by the tourist, wherever he may then be, the Letter of Credit is returned with it. Should the traveler complete his journey and return home without drawing the entire amount of the Letter of Credit, he may present it at the bank where it was purchased and receive the unpaid remainder.

CIRCULAR NOTES.

These are drafts drawn by an American bank on a London bank and issued to the tourist in amounts of £5 or £10 for convenience. They will be cashed in any part of the world by banks and also by merchants, and are hence coming to be extensively used by travelers instead of Letters of Credit, and by many preferred. Having secured the requisite number of these small drafts, the tourist carries them with him as he would money, and whenever he desires to dispose of one, he simply indorses his name on the back of it, and produces from his pocket a small certificate from the American bank bearing his signature, to show that the indorsement is good.

A draft on London will pass as money in all the civilized countries of the world, less charges and interest for the time required in forwarding the draft to London for collection.



Scene in London. Thames River, Thames Embankment, Houses of Parliament, Westminster Abbey, and S. W. R. R. Bridge and Depot.

TABLE OF INTEREST RATES FOR THE UNITED STATES AND CANADA.

Penalties for Usury; Statute of Limitations on Debts, Notes Judgments and Sealed Instruments.

STATES AND TERRITORIES.	Legal Rate Per Cent.	Rate per Contract Per Cent.	PENALTIES FOR USURY.	STATUTE OF LIMITATIONS.				REMARKS.
				Open Acct's.	Notes.	Judgments.	Sealed Instruments.	
Alabama	8	8	Forfeiture entire Ins't...	3	6	20	10	Judgments of other states limited to 20 years. Exemptions—Personal property $1000, Homestead $2000.
Arizona	10	Any		2	4	5	4	Exemptions—From $1000 to $5000.
Arkansas	6	10	Forfeiture principal and interest.	3	5	10	10	Judgments required to be renewed every three years. Exemptions—$200 to $2500.
California	7	Any		2	4	5	5	On judgments for money loaned 7 per cent only. Exemptions—From $1000 to $5000.
Colorado	10	Any		3	3	6	6	If debts are contracted within the state the statute of limitations extends six years. Exemptions—$300 to $2000.
Connecticut	6	Any		3	3	6	17	Exemptions—$200 to $500.
Dakota	7	12	Forfeiture of Interest....	6	6	20	20	Exemptions—$1500.
Delaware	6	6	Forfeiture Principal.....	3	6	20	20	Exemptions—$75 to $275.
Dist. of Columbia	6	10	Forfeiture entire Ins't..	3	6	12	12	Exemptions—$300 to $400.
Florida	8	Any		4	5	20	20	Exemptions—$1000 to $2000.
Georgia	7	8	Forfeiture excess.....	4	6	7	20	Exemptions—$1600.
Idaho	10	18	Forfeit 3 times am't paid; fine $300 or 6 mos. imprisonment, or both.	4	5	5	6	Exemptions—$100 to $5000.
Illinois	6	8	Forfeiture excess Ins't...	5	10	20	20	Exemptions—$100 to $1000.
Indiana	6	8	Forfeiture excess Ins't...	6	10	20	20	Judgments must be renewed, if not executed, within five years. Exemptions—$600.
Iowa	6	10	Forfeiture entire Ins't...	5	10	20	20	On notes, if partial payment has been made, date of limitation begins from last payment. Exemptions—County, 40 acres; city, ½ acre with buildings regardless of value.
Kansas	7	10	Forfeiture double excess..	3	5	5	15	On open accounts, limitation extends but two years for non-residents of the state. Exemptions—$300 to $400.
Kentucky	6	8	Forfeiture entire Ins't...	2	5	15	15	Exemptions—$500 to $1500.
Louisiana	5	8	Excess above 8, after maturity, forfeits entire interest.	3	5	10	10	Judgments may be renewed at any time before expiration. Exemptions—None in cities; country, homestead, $2000.
Maine	6	Any		6	6	20	20	If notes are witnessed, 20 years. Exemptions—$500.
Maryland	6	6	Forfeiture of excess.....	3	3	12	12	Exemptions—$100.
Massachusetts	6	Any		6	20	12	12	Notes witnessed, 20 years. Exemptions—$300 to $800.
Michigan	7	10	Forfeiture of excess if over 7 per cent.	6	6	10	10	Executions on judgments not entered within 2 years must be renewed. Exemptions—$150 to $1500.
Minnesota	7	10	Forfeiture entire debt....	7	6	10	20	Judgment liens expire after 5 years if not attached. Exemptions—$500 to $1000, besides homestead of 80 acres in county, and one lot to ½ acre in cities.
Mississippi	6	10	Forfeiture entire Ins't...	3	6	7	7	Exemptions—$250 to $500. Residence in city, $2000; county, 80 acres.
Missouri	6	10	Lender forfeits entire interest, borrower pay 10 per ct. to school fund.	5	10	20	20	Exemptions—$300. Homestead in country, 160 acres; in cities, homestead in value from $1500 to $3000.
Montana	10	Any		2	6	6	6	Exemptions—$800 to $2500.
Nebraska	7	10	Forfeiture entire Ins't...	4	5	10	5	Action on foreign judgments must be commenced within 5 years. Exemptions—Personal property, $500; country, 160 acres; cities, two lots.
Nevada	10	Any		2	4	5	5	Merchants', or store accounts, one year only after last purchase. Exemptions—$200 to $500; homestead, to head of family, $5000.
New Hampshire	6	6	Forfeiture of 3 times the excess and costs.	6	6	20	20	Actions on judgments must be brought within 2 years. Exemptions—$100 to $400. Interest in homestead, to wife, during life, $500.
New Jersey	6	6	Forfeiture entire Ins't...	6	6	20	6	Exemptions—Personality, $200; homestead, under statutory notice, $1000.
New Mexico	6	12	Forfeiture of excess.....					Exemptions—To head of family residing on property, if claimed, $1000.
New York	6	6	Voids contract and is a misdemeanor.	6	6	20	20	Corporations barred defense in actions for usury. Exemptions—$250; homestead, if recorded, $1000.
North Carolina	6	8	Forfeiture entire interest, party paying may recover double am't pd.	3	3	11	10	Executions must be renewed within one year and one day from date of issue. Exemptions—Personality, $500; homestead, $1000.
Ohio	6	8	Forfeiture of excess.....	6	15	15	15	Exemptions—$500 to $1000.
Oregon	8	10	Forfeiture original sum and costs.	6	6	10	10	Exemptions—$400 to $700.
Pennsylvania	6	6		6	6	20	20	Exemptions—$300.
Rhode Island	6	Any		6	6	20	20	No higher rate than 6 per cent interest can be collected by law. Exemptions—$200 to $500.
South Carolina	7	7	Forfeiture of all interest..	6	6	20	20	Exemptions—Personality, $500; homestead, $1000.
Tennessee	6	6	Forfeiture of excess, fine and imprisonment.	6	6	10	10	Exemptions—$250, homestead, $1000.
Texas	8	12	Forfeiture of all Ins't....	2	4	10	10	Exemptions—Furniture and farming implements and 200 acres. In cities, real estate, $5000.
Utah	10	Any		2	4	5	5	Exemptions—Personality, $200 to $400; homestead, $1000, and $250 additional to each member of family.
Vermont	6	6	Forfeiture of excess.....	6	6	8	8	Exempt ons—Personality, $250; homestead, $500.
Virginia	6	6	Forfeiture of all Ins't....	2	5	20	20	Exemptions—Personality, $200; homestead exemption, real or personal property, $2000.
Washington Ter.	10	Any		3	6	6	6	Exemptions—Personality, $150 to $500; homestead occupied by family, $1000.
West Virginia	6	6	Forfeiture of excess.....	3 to 5	6	10	20	Exemptions—Personality, $50 to $200; homestead, if recorded before creation of debt, $1000.
Wisconsin	7	10	Forfeiture of all Ins't....	6	6	20	20	Exemptions—Personality, $200 to $250, printing materials, $1500; homestead, country, 40 acres; town or city, ¼ of an acre.
Wyoming Ter	12	Any		4	5	21	5	Exemptions—$500 to $800, and wearing apparel for every person. Homestead, actually occupied, in country, 160 acres; town or city lots, $1500.
Canada	6	Any		1 to 5	6	6	20	Exemptions—$60 to $100.
New Brunswick	6	Any		6	6	20	20	Exemptions—Household effects, $60; homestead, $600.
Nova Scotia	6	Any		6	6	20	20	Exemptions—Wearing apparel and bedding for family, tools, one stove and one cow.

NOTE.—The legal rate of interest for England and France is 5 per cent. Ireland 6 per cent. When the rate of interest is not specified, the legal rate is always understood and so allowed by the courts. Debts of all kinds draw interest from the time they become due, but not before unless specified.

Indorsements.

HOW TO INDORSE NOTES, DRAFTS AND CHECKS, AND THE REASON FOR SUCH INDORSEMENTS. PROTEST AND NOTICE.

VAST beyond appreciation, is the volume of business transacted each day by means of checks, notes, drafts and other forms of commercial paper. And as the actual coin or currency involved, bears a small proportion to the amount of value passed from hand to hand daily, in business, so the aggregate value of the checks, notes and other negotiable paper, themselves bear a small proportion to the whole indebtedness canceled by means of these indispensable instruments to modern commerce. A single check, note or draft, may, and often does, by being passed over from one person to another, discharge five or ten times its equivalent of indebtedness.

The transferring of the title to commercial paper is thus a great vehicle for the furtherance of business transactions, and on account of its importance to the commercial world, the law recognizes it and has thrown about it a peculiar sanction and protection.

Centuries ago when commerce was in its infancy and commercial paper in its formative state, this quality of negotiability or transferability did not exist, but the payee of a note or draft was supposed to hold it until it became due and was paid. But as the necessities of commerce grew, it became desirable to pass the title of notes and drafts like other species of property, and this was done by writing the transfer or assignment on the back of the instrument, and this writing was called an INDORSEMENT.

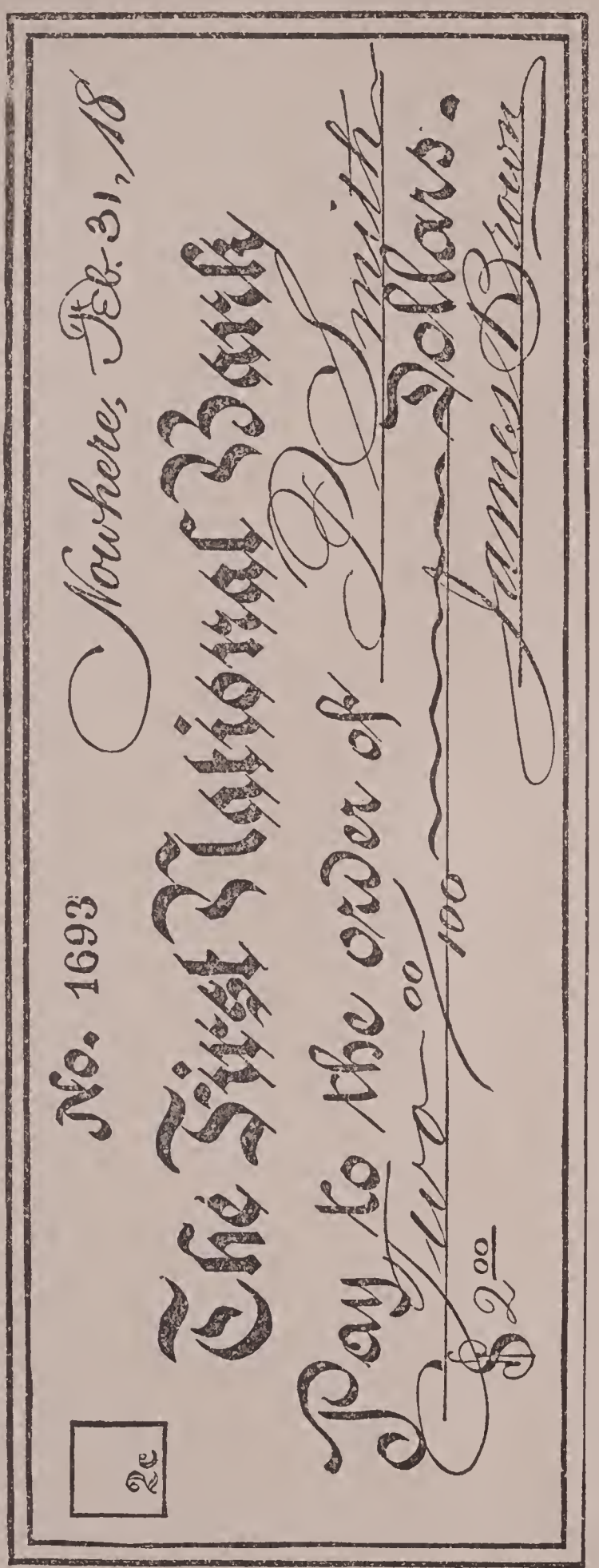
The subject of Indorsements may at first thought seem to be of comparatively small importance, but when viewed in all its various phases and bearings it assumes an importance only second to the paper itself.

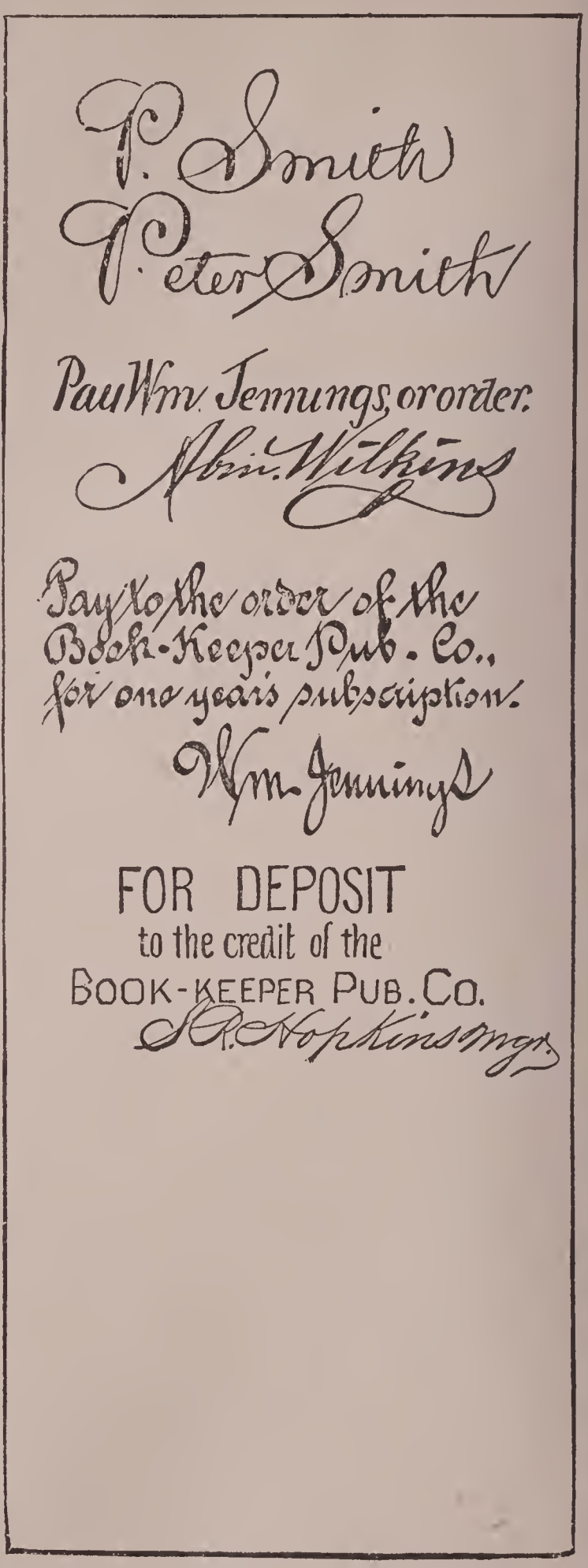
An indorsement is anything written on the back of an instrument pertaining to the instrument. Thus a name written on the back of a note, check or draft is an indorsement. The person who writes his name thereon is called an *indorser*, and the person for whose benefit the name is there written, and to whom the paper is transferred, is called an *indorsee*.

As there is no limit to the number of times which the paper may be transferred, so there is no limit to the number of indorsements which may be placed thereon, and if the back of the paper is entirely covered with indorsements, an additional piece of paper may be pasted thereto for the purpose of receiving more indorsements. Indorsements may be made upon the face of the paper as well as upon the back, and the custom of indorsing on the back only arose from the fact that the back is always clean and more suitable for receiving indorsements. When a note or check is held in proper position for reading, the left end will

be the upper end when reversed for the purpose of indorsement, and the first indorsement should be made near the upper end so as to leave room for any future indorsements which may be desired.

An indorsement, as a rule, not only transfers the title to the instrument indorsed, but also gives additional security for its payment, as it is an implied contract on the part of the indorser that the signatures of all the previous parties are genuine, and also that his title to the instrument is perfect, and that if the check or note is not paid at maturity, he will take it up after payment has been demanded and refused, and due notice has been given.





Simply writing the name is called an indorsement *in blank* and transfers the ownership of the paper to *bearer*, and the paper may then be passed from hand to hand without indorsement. In case a check or note so indorsed be lost or stolen, the owner incurs the risk of the finder disposing of it for value to a *bona fide* purchaser, who could collect it. It is not safe to send paper so indorsed through the mails, or to indorse paper in blank any considerable length of time before it is to be transferred to the indorsee.

When it is desired to make a check, note or draft payable to a particular person, above the name should be written "Pay to —— or order," and such is called an indorsement *in full*, or a *special* indorsement. After a special indorsement, none but the indorsee, or persons to whom he may order payment to be made, can demand payment on the instrument. Paper which is to be sent through the mails should be indorsed payable to the order of the person to whom it is sent, so that in case it is lost the finder can make no use of it. In the example on this page, Abm. Wilkins,

who is supposed to receive the check from Smith indorsed specially to Wm. Jennings.

When a note is left at the bank for collection it should be indorsed thus:

For Collection,

For the credit of

John Wilkins.

By this indorsement the title of the paper is not passed to the bank, but remains in the indorser, while the bank is only authorized to collect, and in case the bank fails while the paper is still in its possession the owner could reclaim the note and save it from going into the hands of the assignee as assets of the bank.

When an indorsement is made subject to some condition without the fulfillment of which the indorsement is void, such is called a *conditional* indorsement. Thus, "Pay to Amos Brown or order upon the delivery by him of a Warranty Deed to lot 28 in block 14, Haine's subdivision to the city of Cincinnati," signed by the indorser, would be a conditional indorsement. This class of indorsements are rare in business.

An indorser may release himself from liability on his indorsement by writing under his name, "Without recourse," or similar words, which indicate his intention to thus release himself, but the indorsee would seldom be willing that the indorser should thus indorse unless by special agreement and under peculiar circumstances.

"Pay to John Smith only" when signed by the indorser, would limit the career of the note, check or draft as negotiable paper, to the indorsee, John Smith, or would prevent the instrument from being further transferred. The words "for my use, or "for my account," when included in the indorsement, signify that the ownership of the instrument is not transferred but merely an authority to collect, and in this respect is similar to the indorsement "For Collection."

The indorser of a check may, in the indorsement, direct how the payment is to be applied, whether on a note or otherwise, as, for instance, the check on the preceding page, is indorsed by William Jennings "for one year's subscription." Now when the publishing company indorses the check for the purpose of receiving value on it the indorsement becomes a receipt to Jennings for subscription.

In indorsing a check or note, sign your name just as it is written on the face; if "J. Smith," write "J. Smith," or if "Jas. C. Smith," write "Jas. C. Smith." If this is not your usual method of signing, or if the name is incorrectly spelled, indorse both ways, first the wrong and then the right.

When it is not desired to draw the money on a check but to deposit it in the bank, the following form is largely used:

FOR DEPOSIT

IN THE

Commercial National Bank,

FOR CREDIT OF

MARKLEY, ALLING & CO.

The handling of numerous checks makes such a lengthy indorsement quite a laborious task, and hence large firms have a stamp prepared by which the letters are stamped upon the back of the paper with ink which is not easily erased. The bank soon comes to know the stamp as the signature of the house, and the written signature is not necessary. This printed signature would not, however, be considered good outside of the city where the firm is located, nor would it be considered good where the transactions of the firm were limited in number. The object of indorsing "For Deposit," as above explained, is to prevent fraud or collusion on the part of the employes of the depositing firm. For instance, the messenger, upon going to the bank to deposit, could easily abstract a check from among the others, and by telling the bank officials a plausible story, that one of the partners wanted to get the currency for this check for his private use, could, if the checks were indorsed in blank, draw the money thereon, and by "doctoring" the pass book, cover his default for weeks, until the amount would reach large proportions.

The statutes of the various states have modified the common law in regard to indorsements. For instance, in some states, when a draft or note is discounted at the bank, the law requires the bank to first exhaust its remedy against the maker before it can proceed against the indorsers. But as a large portion of the notes and drafts discounted in our banks, is taken upon the credit of the discounter, while the maker or acceptor is unknown to the bank, perhaps living in a distant city, it is evident that if the bank were compelled to look to the maker for payment, such paper could not be

readily discounted. To avoid this embarrassment which the statute imposes, the following indorsement is used.

James Marshall & Co.

For value received, ... hereby guaranty the payment of the within note at maturity, or at any time thereafter, with interest at eight per cent per annum, until paid, and agree to pay all costs or expenses paid or incurred in collecting the same.

James Marshall & Co.

The name is written both above and below the printed guaranty, in order to establish the fact of an intention on the part of the indorser to guaranty the payment, or, so that it could not be alleged that the bank stamped the words of guaranty above the signature without authority from the indorser. But by thus having the signatures at an appropriate distance apart, the object of the double indorsement becomes apparent. The first indorsement may be regarded as a transfer of the title of the paper to the bank, while the second is a guaranty of its payment.

PROTEST AND NOTICE.

Bills of Exchange are distinguished as either foreign or inland. They are called foreign when drawn in one state or country upon a person residing in another. The states of the American Union are foreign countries so far as bills of exchange are concerned, for the reason that the laws of the different states concerning negotiable paper are not uniform. Inland bills of exchange are those which are drawn on a person residing in the same state or country as the drawer.

When a foreign bill of exchange is dishonored, that is, when payment or acceptance is refused, it is not only customary but necessary, in order to hold the drawer or indorsers, that the paper should be properly protested, and notice given in due form to the parties to be charged.

The object in protesting foreign paper is to afford satisfactory evidence of its dishonor, for the benefit of the parties to the paper, who, from residence abroad, in a foreign country, or another state, might experience great difficulty in obtaining reliable and sufficient evidence of the fact, and perhaps be at last compelled to rely upon the representation of the holder alone.

Courts always give due respect and consideration to such an official act as a protest under the seal of a foreign notary. Although not necessary in the case of inland bills, the practice of protesting negotiable paper has yet been extended largely to inland bills of exchange and promissory notes, and as these have found their way extensively into bank transactions in the ordinary course of business, the protest has become a cogent and effectual method of exposing the breaches of punctuality which occur in payment of commercial paper at the bank, and the merchant or business man who allows his note to "go to protest," is advertised as incumbered, embarrassed, or financially disgraced.

Protest and notice must be made by a notary public, except in certain cases where the law provides that should there be no notary in the place, a protest may be made by any respectable merchant, attested by witnesses, and will then have the same effect as though made by a notary public.

A notary was anciently a scribe, who made writings of all descriptions, both public and private, but with us he is a public officer appointed by the governor, and properly provided with a notarial seal.

In case of non-payment or non-acceptance of a foreign bill by the drawee, protest must be made forthwith by a notary, under the formality prescribed by the law of that place, and proper notice given to indorsers. This protest must be made on the day on which the instrument becomes payable; that is, on the third or last day of grace, though it may not be drawn up and completed in legal form until afterwards.

After protest, the next step is to give proper notices to all such persons as the holder of the bill designs to hold responsible. The holder may notify all the parties prior to himself, so as to avoid hazard of some

CERTIFICATE OF PROTEST.

.....

.....

.....

.....

.....

State of Illinois, } ss.
.....*County*, }
..... }

Be it Known, That on this.....day of.....

in the year of our Lord one thousand eight hundred and.....

I,..... a Notary Public, duly commissioned and sworn, and residing in the .....in said County and State, at the request of .....

went with the original ..... which is above attached, to the office of.....

and demanded .....thereon, which was refused .....

Whereupon I, the said Notary, at the request aforesaid, did ***PROTEST,*** and by these presents do ***Solemnly Protest,*** as well against the ..... of said ..... the indorsers thereof, as all others whom it may or doth concern, for exchange, re-exchange, and all costs, charges, damages, and interest already incurred by reason of the non-..... of the said.....

And I, the said Notary, do hereby certify, that, on the same day and year above written, due notice of the foregoing Protest was put in the Post Office at.....as follows:

Notice for.....

" for.....

" for.....

Each of the above named places being the reputed place of residence of the person to whom this Notice was directed.

In Testimony Whereof, I have hereunto set my hand and affixed my official seal, the day and year first above written.

.....*Notary Public.*

FEES.—Noting for Protest, . . 25 cents; Protest, ... 75 cents; Noting Protest, . . . 25 cents; Notices, . . . ——;
Certificate and Seal, . . 25 cents; Postage, ... ——; Vol. . . —; Page, . . —; $.....

of the parties being discharged by the omission of the notice, but if he is satisfied with the responsibility of his immediate indorser, there is no necessity for giving notice to others, and if this indorser desires to hold those prior to him, it is his business to take care of himself, and see that the party responsible to him is duly notified. Notice must always be sent with diligence, for if it is not given within the prescribed time, the remedy of the holder on these parties is lost.

Notice may be either verbal or written, but it is generally written, and must be precise, either to describe accurately the instrument by giving the name of the drawer, indorsers, payee, amount, and also of the fact that presentment and demand for acceptance or payment has been refused.

If the notice of dishonor is given in writing, it may be left at the residence or place of business of the person to be notified. If the party resides at a distance, the notice may be given by letter. Should his residence, place of business, or present post office address be unknown, the notice is to be sent where he is known to have formerly resided. If all of these be unknown, and after the exercise of due diligence, then want of notice will be excused.

NOTICE OF PROTEST OF NOTE.

State of Illinois, } ss.
County of..... }
..... }

.....*18*

Sir,

A.....*for $*.....

.....

Dated.....

Payable .....

Signed by.....

Indorsed by.....

.....

Being this day due and unpaid, and by me Protested *for non-payment, I hereby notify you that the payment thereof has been duly demanded, and that the holders look to you for payment, damages, interest, and costs.*

Done at the request of.....

.....*Notary Public.*

To.....

LAW GOVERNING INDORSEMENTS, PROTEST AND NOTICE.

A FIRST indorser is liable to all subsequent indorsers.

An indorsement is subject to the law of place where the indorsement is made.

An indorser of a check is on the same footing as on all other forms of negotiable paper.

A presumption of law is, that indorsements and transfers have been made before the paper became due.

Where there are joint payees of a bill or note, all must join in an indorsement, unless they are partners.

All parties to negotiable paper, whether maker, drawer, indorser, or acceptor, have a defense as against fraud.

A finder of a bill or note, lost by the owner, acquires no rights thereby as against maker, drawer, acceptor, or indorser.

An indorser has certain conditional responsibilities, but he can qualify them in writing his indorsement if he chooses.

If the letter containing a protest of non-payment be put into the post office, any miscarriage does not affect the party giving notice.

A negotiator may guaranty the payment of a note at maturity, and the purchaser will have the advantages of an indorsement without its disadvantages.

In case a holder begins a suit against an indorser, the beginner cannot be allowed to strike out the name of any one who has indorsed before the defendant.

If an indorsement be stricken out through mistake of a holder, he may restore it. If he strikes it out on purpose, the indorser is released from all obligation.

A purchaser of a bill or note may prudently insist on a waiver of demand, protest, and notice, at the time of the transfer; especially when the indorser lives at a distance.

A person receiving a note under a blank indorsement, or when drawn payable to bearer, he is on first view the holder, and entitled to recover the amount due on the note.

A payee who parts with a note for value by indorsement, has no further interest in it other than its payment at maturity by the maker, so as to save him harmless.

Where a person puts his name on the back of an instrument on demand or on time, at the time of its inception, he is liable, not as indorser, but as original promisor.

A person that transfers by delivery and not by indorsement, a bill of exchange or promissory note made payable to bearer, does not render himself liable on the bill or note to the person who receives it.

An indorser of a note is entitled to notice when it is due, in order to hold him for payment. If an indorser chooses he may waive notice before maturity of the paper by writing, "I waive notice."

A holder's right of action arises at once when a bill is dishonored. The drawee's refusal to accept involves the breaking of the contract, since, by the act of drawing and indorsing, the drawer and indorser guaranty acceptance.

An indorser must be notified, whether a drawer is entitled to notice or not. Even if the other parties are guilty of fraud, that would not deprive the indorser of his right to proper notice, unless he is guilty of fraud himself.

Paper that is indorsed solely for the accommodation of another is called accommodation paper. If the maker, drawer, indorser, or acceptor is compelled to pay such paper, he may recover the amount, together with costs, from the accommodated party.

Notice of the dishonor of a bill must be given, even if the drawee be dead. The holder will not be excused from giving notice, on account of the death of the drawer or indorser. In such cases he must use due diligence, if necessary, in giving notice to the surviving representatives.

A lost bill or note must be described with certainty, or a copy of it must be shown. When a demand is made on a lost note, a bond of indemnity must be executed and tendered to the party on whom demand is made; otherwise the remedy on drawer or indorser will be lost.

A bill or note is not finally discharged when paid by an indorser, except in respect to subsequent indorsers. It is not extinguished until paid by the maker in case of a note, or acceptor in case of a bill. Hence an indorser, who takes up a dishonored note or bill, may put it again in circulation; whereas, if paid by or on behalf of maker or acceptor, it is no longer negotiable.

A check drawn payable to Richard Roe, or bearer, may be transferred to any other person by handing it over as if it were a bank bill. If the word order, instead of bearer, were written, the one who is to receive pay must put his name on the back in order to transfer it to another. Then the payee becomes indorser, and the person receiving it from him indorsee. The check may be indorsed thereafter by many parties, as in the case of a bill of exchange or promissory note.

A maker or acceptor of a note or bill, before paying it, should know that the indorsements are genuine. If indorsed in blank, to know that the payee's indorsement is genuine. The holder cannot acquire any title through a forged paper, no matter how many indorsers there are. The holder's title arises through the first indorser, and hence the maker or acceptor is protected in making payment, as if the paper were payable to a certain person or order.

A negotiable note that is properly transferred to an innocent holder for value before it is due, may be collected by the holder without regard to the rights and equities which existed as between the original parties. A negotiable paper that is transferred after it has become due is taken by a purchaser at his own peril. Though negotiable as before maturity, the party takes it subject to every defense existing against it in the hands of the holder when it matured. Over due paper is considered payable within a reasonable time, on demand, when it is transferred.

DETECTING Counterfeit Money.

THE desire to accumulate property is one of the noblest that nature has implanted in man, and it is through the successful results of this desire, we are enabled to point with unerring certainty to the disembarking line, which so surely characterizes the advanced, educated, refined and civilized man from that of the wild savage, whose highest desire is to slay and rob his fellow men, and proudly exhibit their scalps, or the plunder he has acquired, as evidence of his cunning or courage.

It is through this inborn desire to accumulate that man is willing to labor, toil, suffer, and forego present gratifications for the hope of future greater satisfactions; that has resulted in the building and equiping the mighty ships of commerce, whose white, spreading canvas dots every sea where commerce may be known, or where the interests of God's creatures may best be served. It is through this desire, coupled with unremitting toil, that we owe everything of permanent enjoyment, of enlightenment and of prosperity.

The millions of dollars of paper money which is handled every day as the natural fruit of toil and saving through the many and diversified transactions in the vast, illimitable and ever rapidly developing field of commerce, is but the representative of ownership of property.

If this representative is what it purports on its face to be, each and every one who receives it in exchange for services or commodities, owns not merely a piece of paper, with designs, words and promises printed or engraved thereon, but an interest or an undivided whole in a farm, a block of buildings or a store well stocked with merchandise, which, in his estimation, at least, is more desirable to him than the labor or commodity for which he has voluntarily made the exchange; but, if on the contrary, it is other than what it purports on its face to be, he finds that he is the owner of a piece of paper whose value is *nil*.

There is, at the present writing, 1884, nearly eight hundred million dollars of paper currency in the United States, consisting of greenbacks and national currency, a great portion of which is in actual circulation, and it has been estimated by eminent authorities who occupy positions of trust in the various departments through which the financial machinery of this vast sea of paper money is daily circulated, that there is in circulation nearly one-fifth of this amount in counterfeit money, or about one hundred and sixty million dollars; and not one dollar of this counterfeit money owes its circulation to any excellence of the work in its manufacture, but wholly to the general ignorance of those who handle it, as to what is required to constitute a genuine bill. The time will come when the United States will redeem all of its issue of paper money, when those who are holding any of this counterfeit money will have to stand the loss to the extent of the sum in their possession.

To all of those who are willing to take a small portion of their time each day for a few weeks in learning just what it takes to constitute a genuine bill, there need be no necessity of ever losing anything by counterfeiters, as it is impossible for them to make bills which will in any way approach the beauty and exactness of the genuine ones. There is not at the present time, nor has there ever been in the past, nor will there ever be in the future, a counterfeit bill made that cannot be detected at sight; and the positive knowledge of how to know at all times when a bill is genuine and when not is within the reach of all those who may have the privilege of reading the following information or in-

fallible rules with a genuine desire to be benefited thereby.

DEVICES AND FRAUDS.

Various devices are resorted to by a numerous gang or body of persons, to get on in the world without turning their attention to legitimate and useful employments.

This class includes many that are not engaged in the practice of counterfeiting and putting forth bad money, but who make themselves felt in various ways through vain tricks and schemes, which are, to all intents and purposes, frauds.

Business men are generally apt at detecting and turning off petty schemes, but they find it best to have the means with which they may deal successfully as against regular swindlers, forgers and counterfeiters.

COUNTERFEIT AND GENUINE WORK.

As indicated above, counterfeit notes are issued and put into the channels of circulation in abundance every year by those engaged in the practice of counterfeiting. These notes are often such good imitations of the genuine that it is quite difficult to discern the difference.

That he may protect himself, each business man should have some definite knowledge of a genuine bank-note.

The engraving of a genuine bank note, in most all of its parts, is done by machinery, and it is more exact and perfect. On the contrary, most all parts of counterfeit notes are done by hand.

DETECTING COUNTERFEIT MONEY.

Counterfeiters cannot afford to purchase machinery, such as is used for the production of genuine notes. The cost of such machinery is between $100,000, and $150,000, and if it were in wrong hands it would be always liable to seizure and confiscation.

In order to prevent the forgery of bank-notes, a great deal of ingenuity and art has been expended on their production. The principal features of the manufacture are described as a peculiar kind of paper and water mark; an elaborate design, printed with a peculiar kind of ink, and certain private marks, known only by the bank officials.

The work of counterfeiters can never equal that of the makers of genuine notes, whose skill and facilities for producing the highest grade of work known to the art, are the best that the world affords.

Unless one is somewhat learned as to the quality of engraving, that he may be able to distinguish a fine specimen of the art when he sees it, he is likely to become a victim of the counterfeiter's operations.

LATHE WORK.

When the genuineness of a bank-note is doubted, the Lathe Work on the note should first be closely scrutinized. The several letters of denomination, circles, ovals, and shadings between and around the letters in the words, etc., are composed of numberless extremely fine lines — inclusive of lines straight, curved and network. These are all regular and unbroken, never running into each other, and may be traced throughout with a magnifying glass.

Without the skill or machinery, by which the genuine is produced, the same quality of work cannot be done. Therefore, in a counterfeit, the lines are imperfect, giving the paper a dull or hazy aspect, that may be all the better appreciated by comparing it with the genuine. The lines in the counterfeit will be found now and then irregular in size, and broken; not uniform in course, sometimes heavy, sometimes light; no two stamps or dies on the same note being exactly alike.

The fine, uniform, shade-lines, with which the letters on the genuine are embellished, are wrought by a machine that cannot be reproduced by counterfeiters, nor used for other than legitimate purposes, by authority.

GEOMETRICAL LATHE.

The fine line is the characteristic of the various and beautiful figures which are seen on a genuine note. This line is produced by what is called the Geometrical Lathe. The patterns made by the geometrical lathe are of every variety of form. They are not engraved directly upon the bank-note plate, but on pieces of soft steel plate, which are afterwards hardened. The impressions are then transferred to a soft steel roller, which, in its turn, is also hardened, and the impressions remain there, in relief. This roller is then capable of transferring the same designs to the bank-note plate, by means of the transfer press.

In counterfeit engraving, the design is made directly upon the plate, and not by transfer, as in the produc-

tion of plates for genuine notes. The essential difference between the two methods of production is, the counterfeit is made by hand, and is inexact and imperfect, while the genuine is made on geometrical principles, and is therefore exact, artistic and beautiful.

In all the government issues the geometric lathe work is liberally used. This should be studied carefully, as it constitutes the chief test of genuineness.

Fine lines, of unerring exactness, never broken, are seen on the genuine medallion heads, or shields, upon which the designation of the note is sometimes stamped. This nicety cannot be given by hand, or with the use of imperfect machinery. By close scrutiny the lines will be found to break off in the pattern, or appear forked, irregular in size, and not well defined throughout.

On most counterfeits the vignettes are not well engraved, and the portraits have a dull appearance; the letters are usually wanting in clearness; the printing is sometimes faulty, by which some features of the note are obscured.

RULING ENGINE WORK.

In Ruling Engine Work, as it is called, the fine line is present, also. The engraving is produced and transferred in the same way as the geometrical lathe work. In this they are parallel and not in circles. Those which constitute the shading of letters are so fine that they form a perfectly even gray shade. They may be printed so that the shading will appear darker, but the aspect will be uniform. The spaces between lines are exact, whether the lines be horizontal or diagonal. The lines are also made crooked or wave-like, not absolutely parallel. Ruling engine work is generally used for shading of names of banks, and also for the names of town, state, etc.

VIGNETTES.

While lathe work and that of the ruling engine are invariably machine work, and therefore cannot be successfully reproduced by counterfeiters, the Vignettes are chiefly the work of the hands. In all genuine work they are made by first class artists, who are well paid for their services, and who therefore have no incentive to exercise their skill for illegitimate purposes.

Sometimes water and sky are done with the ruling engine, and when they are, no counterfeiter can successfully imitate them. Fine vignettes are seldom seen on counterfeit notes. If the lathe and ruling engine work be genuine, an ordinary vignette cannot make a note counterfeit, and if that be counterfeit, no vignette can make the note genuine.

The vignettes on genuine notes are executed by men at the head of their vocation, and are very life-like and beautiful. Counterfeit vignettes usually have a sunken and lifeless appearance. Genuine vignettes, as seen upon government issues, consist of out-door scenes, portraits, historical pictures, and allegorical figures. They are all exceedingly beautiful, and it is not likely that such work will ever be successfully imitated.

SOLID PRINT.

The lettering, or solid print, in genuine work is done by a first-class artist, who makes that kind of work his exclusive concern. The name of the engraving company is always engraved with great pains and is very accurate. It will be seen on the upper and lower margin of the note. This, in counterfeits, is not quite uniform or even. The words "one dollar," as on the one dollar greenbacks, are to be considered as a sample of solid print.

BANK-NOTE PAPER.

Bank-notes are printed upon paper composed of linen, the quality of which is not always the same, and it varies in thickness. Therefore, the paper is not always a sure test, but it is important. The manufacture of this paper is a profound secret, as carefully kept as the combinations to the great vaults where the government's millions lie awaiting further river and harbor bills. It is made only at the Dalton mill, which dates back almost to colonial days. What its combinations are nobody knows except those intimately connected with its manufacture. The secret of the paper-making is jealously guarded, as is also the paper itself. From the moment it is made until it gets into the treasury vaults it is carefully guarded. It goes there in small iron safes, the sheets carefully counted, and all precautions against its loss being taken both by the government officials and by the express companies which carry it.

COUNTERFEIT SIGNATURES.

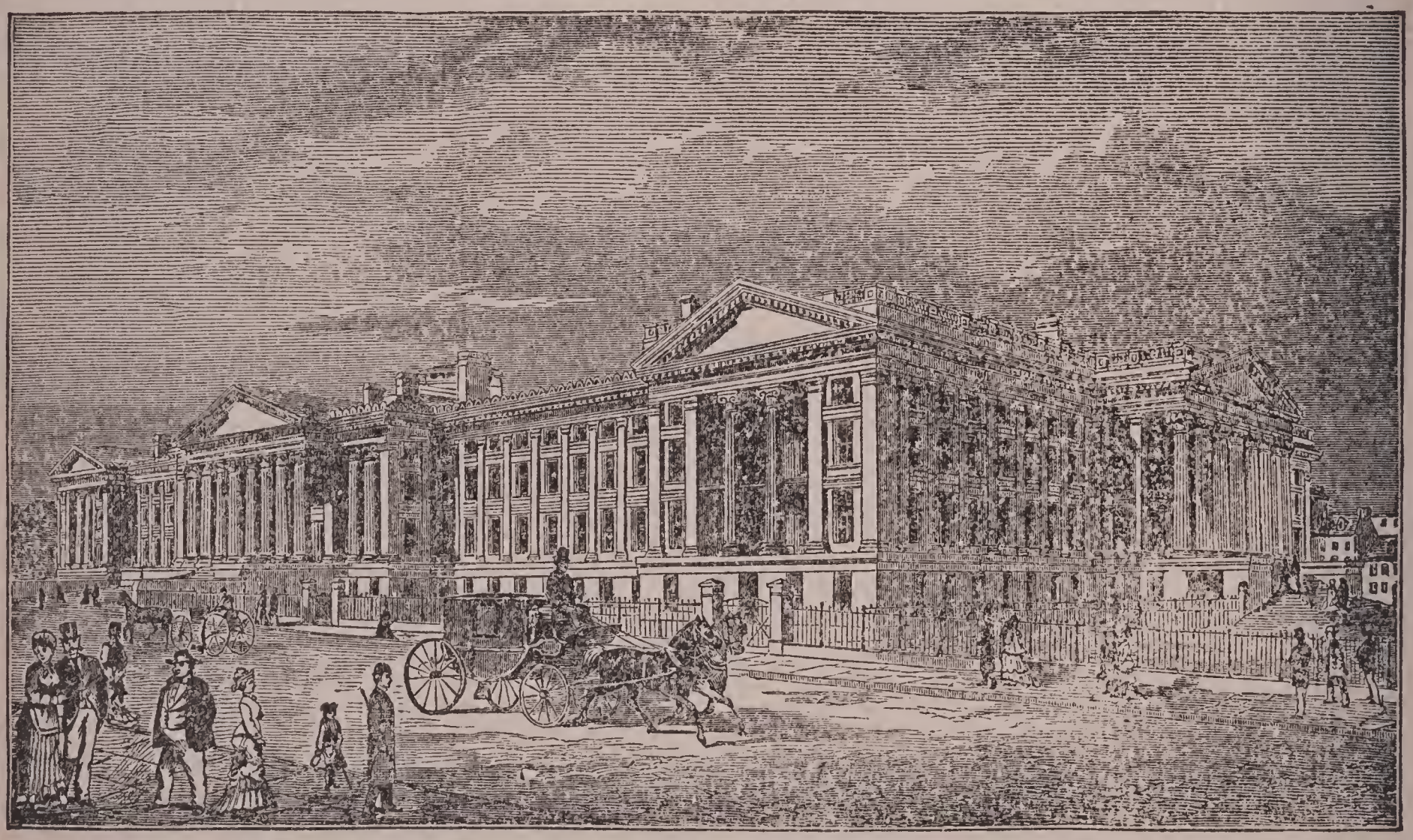
Sometimes genuine notes are stolen before they are signed; then the only thing about them made counterfeit is the signatures. Those who are familiar with the signatures of the officers of the bank where notes are purloined, may not be lead into error, as such signatures usually appear more or less cramped or unsteady; but there is no sure protection against a counterfeit of this kind for those who do not have special knowledge of the signatures.

ALTERED BANK-NOTES.

Bank-notes are altered in two ways, namely: raising the denomination, and changing the name of a broken to that of a responsible bank.

First, in altering a note, it is scraped until thin; then figures of larger denomination are pasted over. A pasted note may be detected by holding it up to the light, when the pasted parts will appear darker, as they are thicker.

Second, the denomination of a note is raised by taking out a low one with an acid, and printing in a higher one with a counterfeit stamp. The ink used in genuine bank-note printing is a peculiar kind, and not easily to be obtained by counterfeiters; therefore, their printing will not appear as clear and bright as that of the government, which is done with ink of the



UNITED STATES TREASURY BUILDING, WASHINGTON, D. C.

finest quality. If the ink is black, it gives a clear and glossy impression, without any of that smutty appearance, as is sometimes seen in counterfeit bank-notes. It is almost impossible to imitate the green ink that is used by the government, and it is nearly as difficult to imitate the red and other colors. Counterfeit inks look dull and muddy, while genuine inks have a glossy appearance.

In the case of a note altered by the use of acid, it may be noticed that the acid, by spreading more than was intended by the counterfeiter, has injured parts of other letters, and the paper will appear more or less stained by the acid.

COMPARING AND EXAMINING NOTES.

A counterfeit should be compared with one that is genuine, in order to familiarize one's self with the distinguishing features which have already been indicated.

It is best to acquire the habit of giving each note as received a searching glance, turning it over to see the back, and if there be any defect, it will probably catch the eye. If there be the least suspicion, a critical

examination of all its parts should be made.

In case of doubt, the lathe work should be carefully examined, and it may be compared with a perfectly good bill; then examine the shading around the letters, and search for any sign of alteration in the title or denomination of the note. If there are any medallion heads or shields, notice the lines; if there is any red letter work, designed to appear on both sides, look at the character of the work on the face, then turn the note and examine the back. If the printing is not exactly alike on both sides, but varies in any part the note is counterfeit. Then observe the vignettes and portraits, to see whether their style and perfection compare well with the work on genuine notes. Then examine the solid print and engravers' names, as well as the printing, ink, and paper. By such thorough examination, one can hardly be at a loss to determine the status of the note.

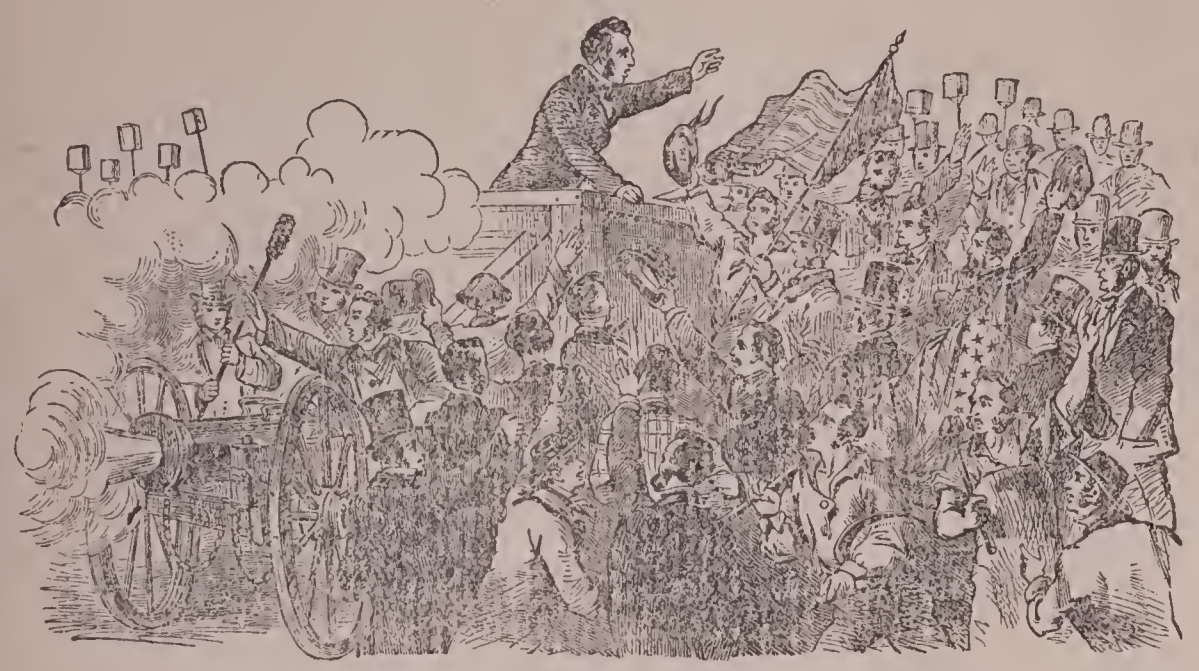
Good magnifying glasses are necessary, in most instances, to bring out the fine lines on bank-notes. Sometimes a microscope of great power is required to discern the genuine line.

PIECING, ETC.

Counterfeiters sometimes make ten bills of nine by what is termed piecing. Thus, a counterfeit note is cut into ten pieces by the counterfeiter, and these pieces are used in piecing nine genuine bills, from each of which a piece has been cut. The nine genuine pieces, thus obtained, are then pasted together, and with the tenth counterfeit piece added, make a tenth bill, which is the gain.

Piecing bank-bills is not a very successful practice. One who possesses such information as here given, can readily detect the difference between the counterfeit and the genuine. This difference is, however, made less apparent by the counterfeiter, who defaces the counterfeit part, so as to give the note a worn appearance.

Counterfeiting is rendered very difficult in consequence of the remarkable excellence of the work on the government and national currency, as also from the difficulty of imitating the green. But this currency, if successfully imitated by counterfeiters, will repay large outlay and care, as the greenbacks pass anywhere in the nation, and a counterfeit may be carried to other states or sections as it becomes known in any particular locality. National bank currency may be counterfeited by preparing a plate, and then with simple change in the name of the bank the counterfeit can be adapted to the various towns where banks are located. This much is written, not to lessen the value of or confidence in the issues of the government, but to admonish the public against the dangers of a false security.



POLITICAL HISTORY OF THE United States.

Vocabulary of Party Names, Measures, Terms & Maxims.

Abolitionists, Abolition of Slavery. The earnest opponents of the institution of slavery were so-called, from their uncompromising spirit and persistent efforts in the direction of abolition. The discovery and settlement of America gave rise to that foul stigma on christendom, the African slave trade, by which millions of the unhappy Africans were torn from their native country, and subjected to a miserable servitude. The vessels which transported the slaves from Africa to America were overcrowded, and the extremest suffering, resulting in the death of many, was the only order in that inhuman business. (For matter concerning the suppression of the slave trade and the abolition of slavery throughout the British empire, see Slave Trade and Slavery.) From the beginning of our national history up to the war of 1861-5, negro slavery existed in this country. It was opposed prior to 1776 by the Quakers, or Society of Friends. Slavery was abolished in the northwest territory by the ordinance of 1787, in the state of New York by gradual emancipation act in 1827, and in the territories west of the Mississippi by the Missouri compromise. The traffic in slaves was suppressed by law in Great Britain in 1807, and likewise by the United States in 1808. The colonization society was organized at Washington in 1816, to colonize free white negroes, and a colony was established permanently at Cape Mesurado. This colony became an independent republic in 1847, under the name of Liberia, with Monrovia as its capital. From 1829, William Lloyd Garrison, and others, favored abolition without regard to colonization. On the first of January, 1831, Garrison began publishing The Liberator, in Boston. This was followed by the New England antislavery society, in 1832, organized in January, on the basis of immediate abolition. In December, 1833, the American antislavery society was formed at Philadelphia, Beriah Green being president, and Lewis Tappan and John G. Whittier secretaries of the convention. The slavery question thus became nationalized, and the abolition party assumed the importance of a grand movement. The original antislavery society split in 1839, Whittier, Gerrit Smith, and others well-known, leaving the radical Garrisonians, and forming, in 1840, the American and Foreign antislavery society. Mr. Garrison, through his newspapers, published successively, and Joshua R. Giddings, of Ohio, in congress, raised their voices so that the whole country heard them. Mr. Garrison was first subjected to most bitter denunciations, and afterward, in October, 1835, on the occasion of a meeting of the Female antislavery society in Boston, before which he intended to speak, he was seized by a mob and dragged through the streets to the city hall, and committed to jail. Mr. Garrison printed on the forefront of the Liberator: "My country is the world; my countrymen are all mankind." Wendell Phillips, who, mindful of the boldness and pluck as displayed by Garrison in the presence of persecution and cruel abuse, became an avowed friend and co-worker with him in 1836. Mr. Phillips afterward withdrew from the practice of law, since he conceived that the constitution of the United States was tainted with the spirit of slavery. He therefore denounced that document as "a covenant with death and an agreement with hell." He fought against slavery and oppression for upward of thirty years. In the fall of 1837, Owen Lovejoy was murdered for printing abolition sentiments. He resided at Alton, Illinois, where his printing office was broken up by a mob of men chiefly from the state of Missouri. One of the principal features of the abolition movement, was the production of "Uncle Tom's Cabin," by Harriet Beecher Stowe. The matter first appeared as a serial story in the National Era, at Washington, 1851-2. The moral of that story was forcibly drawn as against the awful curse of slavery, and the rise of the republican party in 1856 was, in fact, due to the genius of Mrs. Stowe, as displayed in that work. As a party, the abolitionists met at Warsaw, New York, 13 November, 1839, and placed in nomination for president, James G. Birney, of that state, and for vice-president, Francis J. LeMoyne, of Pennsylvania. Although these gentlemen declined, they were voted for by 7,059 persons, as against Harrison, the whig candidate, and Van Buren, who had been nominated for re-election by the democrats. In the campaign of 1844, the abolitionists, under the name of liberal party, met at Buffalo, in August, and again nominated Mr. Birney, then of Michigan, and Thomas Morris, of Ohio. This ticket for president and vice-president, received 62,300 votes, causing the defeat of Henry Clay, whig candidate, and the election of James K. Polk, democrat. The abolitionists subsequently voted with the free-soil and republican parties. From 1850 to 1860, the abolitionists aided fugitive slaves (in spite of the fugitive slave law) to escape from the south, and piloted them through the northern states to Canada. The organization was known as the Underground railroad. In the exigencies of the war for the union, the fugitive slave laws were finally abolished, 28 June, 1864. The complete abolition of slavery was accomplished as a result of that war (1861-5). For information concerning the great measures involved in the abolition movement, see Ordinance of 1787, Missouri compromise, Wilmot Proviso, Compromise of 1850, and Kansas and Nebraska.

Albany Regency. A name given to the political faction which, from 1820 till 1854, managed the democratic party in New York.

All Talk and No Cider. An expression used by disgusted members of the body politic in Bucks county, Pennsylvania, where a company met to test a barrel of cider, presumably during the hard-cider and log-cabin campaign. Political topics were discussed with so much enthusiasm that the barrel of fluid was forgotten until several persons got up to retire from the meeting, saying at the same time that the concern of the speakers was "all talk and no cider."

Amalgamation. A term often used to indicate the process of separating gold and silver from their ores, or the combinations of mercury with other metals. In the United States it is improperly applied to the mixing of races, as the black and the white.

American Association. The name of an association, as proposed by the continental congress (1774), the members of which should agree not to trade with Great Britain, the West Indies, or with parties engaged in the slave trade.

American Party. See Know-nothings.

American Whigs. First American political party. From 1763 to 1775, the tories favored passive obedience to the crown, but the whigs made manifest their spirit of independence. King George II declared his American subjects out of their allegiance, when the latter declared their independence of him. The name whig then became synonymous with patriot, and those who supported the crown were called tories.

Amnesty. An act of oblivion, by which crimes and offenses against the government up to a certain time are so obliterated that they cannot again be brought against the guilty parties. President Johnson issued a proclamation of amnesty, by which the mass of southern citizens could receive pardon, 29 May, 1865.

Anti-federalists. See Federalists.

Antimasonry. The society of free masons was organized in the United States during last century. William Morgan, of Batavia, New York, having, in 1826, written a book against masonry—exposing the secrets of the order—he was seized and taken to Niagara, in September, and nothing further was ever heard of him. The antimasons, in September, 1831, nominated William Wirt, of Maryland, and Amos Ellmaker, of Pennsylvania, for president and vice-president respectively. These candidates received the electoral vote of Vermont. See Morgan.

Antirentism. An organized opposition to manorial rights of agricultural lands in New York state. Tenants had deeds for their farms, but paid annual rental in kind in lieu of a principal sum, which caused discontent among the tenants after 1790. After 1839 the tenants began a reign of terror and refused to pay rent for some ten years. In 1846 the antirenters procured the insertion of a clause in the new state constitution, abolishing all feudal tenures and incidents, etc. After 1847 all disturbances ceased on account of antirentism.

Antislavery. Opposition to slavery.

Apportionment. An apportionment in representation; as that made by act of apportionment, passed in congress, February, 1882, by which was established a ratio giving 325 members to the house of representatives.

Aristocracy. See Commonwealth.

Assassination of Presidents. Abraham Lincoln was shot through the head by John Wilkes Booth, at Ford's theatre, in Washington, after ten o'clock on the 14th of April, 1865, and expired at twenty-two minutes past seven o'clock the next morning. An attempt upon the life of Secretary William H. Seward was made at the same time, while he was confined to his bed from the effects of a fall from a carriage; this assassin, Lewis Payne Powell, inflicted severe wounds by striking at the throat of his victim three times, then rushed off to save his own life. James A. Garfield was shot in the upper part of the arm and in the side or back, near the backbone, by Charles Guiteau, at the Baltimore and Potomac depot, in Washington, at 9:20 a. m., on the 2d July, 1881, and after a painful illness of nearly three months, suddenly expired at 10:35 p. m., Monday, September 19, 1881. See Execution of Assassins.

Autocracy. That form of government in which the sovereign exercises uncontrolled power, uniting in himself the legislative and executive powers of the state. Almost all Eastern nations have this form of government.

Bank of the United States. An institution that was incorporated in 1791, but did not go into operation till 1794. It was the first one of the kind in the country, and established at the suggestion of Alexander Hamilton, secretary of the treasury. Its charter was to run twenty years; headquarters in the city of Philadelphia. The capital of the bank was $10,000,000. Its charter expired by limitation in 1811, and the effort to recharter was defeated by one vote in the house, and by the vote of the vice-president in the senate. The second United States bank was chartered in 1816, for the same term, with a capital of $35,000,000. An act of congress in 1832 for extending it, was vetoed by President Jackson, who ordered the funds kept in the bank to be withdrawn from it in September, 1833. This act produced much excitement throughout the union. The senate passed a resolution of censure in March, 1834, which was expunged by order of the senate in January, 1837.

Barbecue. See Hard Cider and Log Cabin Campaign.

Barnacle. One who attaches himself to the body politic for mercenary purposes.

Barnburners. An epithet applied to the antislavery members of the democratic party in New York. The same was given by those who remembered the old story of the man whose barn was infested with rats, and who knew of no better way to rid himself of them except by burning the barn. The term meant those democrats who desired to abolish all corporations because of their dissatisfaction with the corporation and system of the United States bank. (See Bank of the United States.) The barnburners met at Utica, 22 June, 1848, and nominated Mr. Van Buren for president, and Henry Dodge, of Wisconsin, for vice-president. See Hunkers.

Black Republican. An epithet used by members of the democratic party in Illinois and elsewhere, to distinguish a radical republican. The abolitionists were often called black abolitionists.

Bloody Shirt. Applied to the politician who is disposed to parade acts of violence and murder committed under carpet-bag government.

Blue Laws. An epithet applied to certain supposititious regulations which were imposed upon the inhabitants of the states of Massachusetts and Connecticut in the seventeenth and eighteenth centuries; any law of the puritans, who were so-called from their professing extraordinary purity in worship and conduct.

Blue-light Federalist. During the war of 1812, while the British fleet lay off New London, Conn., blue lights were often seen near the shore; and it was claimed that these lights were used as signals to the enemy by those who had opposed the war. The epithet was illy applied, as it was never shown that an American burned a blue light in such a cause.

Bolt. To leave a political party suddenly; to neglect or refuse to vote for.

Border Ruffians. Citizens of the border counties of Missouri who invaded the territory of Kansas in the interest of slavery were so-called. Frequent raids were made by slave state settlers in 1856, and Lawrence and Ossawottomie were nearly destroyed. John Brown, with thirty men, was successful in opposing five hundred men who attacked Ossawottomie. He was afterward called "Ossawottomie Brown." See Kansas and Nebraska.

Boss, Bossism. The act or practice of a politician who dictates the distribution of government patronage in a community, state, or section.

It is true that he was removed for no better reason than to make room for one of Cameron's henchmen, and thereby strengthen the power of the Pennsylvania boss. . . . It was the natural sequel to the president's indorsement of Cameron as the boss of Pennsylvania.—Chicago Tribune, June 5, 1882.

We denounce the system which makes patronage and spoils out of public offices; we denounce the boss rule which, when tamely endured, makes leaders into autocrats and reduces the mass of citizenship into political bondage; we demand, instead of the insolence, proscription, and tyranny of bossism, the free and conscientious exercise of private judgment in political affairs.—Major Merrick, Pennsylvania, June 2, 1882.

Some made a fuss, as others did,
About the bubble, reputation;
But at the pinch my price they paid,
And I'm the boss of legislation.
—Exchange.

Bounty. A premium paid by government to the producers, exporters, or importers of certain commodities, with the view of encouraging the prosecution of these branches of industry; also, a sum of money given by government to persons enlisting in the army or navy, in order to induce them to enter these services.

Brother Jonathan. Governor Jonathan Trumbull, the elder, of Connecticut, was the executive of the state named at the time General Washington was in command of the revolutionary army. The general placed much confidence in the wisdom and sympathy of the old governor, who was in a position to aid him in supplying the wants of the army. So the term originated from a remark of Washington, that he must consult "Brother Jonathan." The army was confronting the British before Boston, and Brother Jonathan, on being consulted by the commander, came forward with such aid as rendered the army more effective. When difficulties afterward arose in the army, it became a by-word, "We must consult Brother Jonathan." This term has now become characteristic of the whole country, as John Bull has for England.

Bucktails. A term applied to the political opponents of De Witt Clinton, a publicly active citizen of New York, who filled the office of mayor in 1815. The bucktails wore in their hats, on certain occasions, a portion of the tail of the deer. Hence the name.

Bugbear. A notion or fancy that is retailed from the stump or through a newspaper by a political sensationalist, to scare the unsophisticated people into the support of a measure or party; a scarecrow; a man of straw; a political sensation.

Bulldoze. To intimidate. The term originated in Louisiana, where it was used after the war of 1861-5, in connection with the alleged intimidation of negro voters in that state.

Bullionist. One that prefers coin, instead of paper, as money.

Bummer. A worthless person, without any visible means of support. In politics, a sort of all-talk-and-no-cider fellow.

Buncome. Speech-making for purposes of political intrigue; mere talk.

Campaign. The four or five months which intervenes between the nomination of candidates for president, and the day of election in November. "Canvass," to seek for influence or votes; also, as used in the United States, to estimate or to count votes.

Carpet-bagger. One of those unprincipled adventurers who sought to profit by plundering the defenseless people in some parts of the south. After the war of 1861-5 the term was used with effect during the period of reconstruction.

There is another influence equally injurious with theirs (ku-klux), and a great deal more detrimental to the fame and character of the republican party. I allude to what are known as the "thieving carpet-baggers."—Horace Greeley, New York, June 12, 1871.

Caucus. A meeting of the leaders of a political party, to consider and agree upon a plan of action for the campaign.

Census. An enumeration of the people, made every ten years in the United States.

Charleston, Evacuation of. See under the head of "Swamp Angel."

Charter Oak. A tree in which the colonial charter was secreted, at Hartford, Conn., in 1688. Blown down in 1856.

Civil Rights Bill. A measure, having passed the senate, April 2, was adopted by the house contrary to the president's veto, by a vote of 122 to 41. This was for the protection of the freedmen, but did not give them the right to vote. For this latter purpose the fifteenth amendment to the national constitution was adopted by congress 26th February, 1869, and having been ratified by three-fourths of the states, was declared effective 30th March, 1870.

Civil Service Reform. In accordance with an act of congress, passed 3d March, 1871, a board of seven commissioners was appointed by President Grant to inquire into the matter of reforming the civil service. During President Hayes' administration an order was issued to the following effect: "No officer should be required or permitted to take part in the management of political organizations, caucuses, conventions, or election campaigns. Their right to vote and to express their views on public questions, either orally or through the press, is not denied, provided it does not interfere with the discharge of their official duties. No assessment for political purposes on officers or subordinates should be allowed." The credit for starting the movement in favor of this object belongs to President Grant, who recommended it in his second annual message, 5th December, 1870.

Colored Soldiers. Persons of African descent were received into service of government by authority of congress, 17 July, 1862. In 1864,

they were unconditionally accepted as troops, and as many as 136,017 were in the United States service during the war.

Commoner. Henry Clay was so-called, as also was Thomas Corwin, by admirers. Clay was also called the great pacificator, from his conciliatory disposition--he, on two occasions, in 1820 and in 1850, succeeded in effecting a compromise between the slave states and the abolitionists.

Commonwealth, or Republic. A form of government in which the people, or at least a portion of them, are acknowledged the source of power, and have the direct appointment of the officers of the legislature and executive. When the body of the people is possessed of this supreme power, this is called a democracy; when the supreme power is lodged in the hands of a part of the people, this is called an aristocracy. See Excellency.

. . . The state was willing that he should be anything so that he did not intrude within the select circle which ruled the commonwealth. By the way, Massachusetts never has been a state; it has always been a "commonwealth," and as such entered the union, and retains that official designation to this time.--Chicago Tribune, November 10, 1882.

Community. A scheme of social living established by John Humphrey Noyes, at Oneida, in the state of New York, in 1847. The leading principles of the community are: reconciliation to God, salvation from sin, recognition of the brotherhood and equality of man and woman, and the community of labor and its fruits. The community was poor at first, but it has survived all vicissitudes, and its landed property and buildings are now valued at upward of $750,000.

Compromise of 1850. The feeling between the north and south on account of slavery, had become so intense that the leading statesmen thought it best to effect another compromise (see Missouri Compromise). A basis of settlement was proposed by Henry Clay, as chairman of a select committee of thirteen that had been appointed to consider the whole subject. This compromise admitted California as a free state, erected Utah and New Mexico into territories, leaving the question of slavery to be decided by the people thereof when they came to form state constitutions; fixed the western boundary of Texas, awarding ten million dollars to that state for losses during the Mexican war of 1846-48; abolished the slave trade in the District of Columbia, and changed the fugitive slave law in order to render it more effective. The several propositions were discussed in congress and by the people for upward of four months, Mr. Clay having reported them on the 8th May, and the final act was passed through congress in September.

Confederacy. A number of confederated but independent states, the central authority of which having no power to enforce any of its measures upon the individual states, that being in the hands of their own governments. The Germanic confederation belongs to this class.

Confederate States. A separate government formed by the seven southern states which were the first to secede from the national union in 1861. Congress of delegates met, February 4, at Montgomery, Ala., where, by joint action of South Carolina, Georgia, Alabama, Louisiana, Florida, and Mississippi, (Texas delegates not being appointed till later), a provisional constitution was adopted, and, on February 9, Jefferson Davis, of Mississippi, was elected as president, and Alexander H. Stephens, of Georgia, as vice-president. On May 6 the Confederate congress passed an act recognizing a state of war with the United States. Virginia, North Carolina, Tennessee, and Arkansas, May 6, 1861, passed ordinances of secession. Davis and Stephens were elected to their offices under the permanent constitution, November 6, 1861.

Confederation, Articles of. The articles as adopted, 15 November, 1777, by the second continental congress, and which formed the basis of the federal union in America. This confederation was ratified on the first of March, 1781, when the last one of the original states signed the compact.

Congress, an American. A meeting of delegates from the colonial assemblies, held at Albany, New York, 19 June, 1754, to conciliate the Iroquois and form a closer alliance of the colonies. A plan drawn up by Dr. Franklin was adopted by the convention. It was opposed by the English lords of trade, who thought it too liberal for the colonies, and the assemblies rejected it because it seemed not truly American.

Congress, Colonial. The first congress held in America. It was composed of delegates from nine of the colonies, who met in New York, October 7, 1765, and published a declaration of their rights and grievances, insisting particularly on the right of exclusively taxing themselves, and complaining loudly of the Stamp act, which see. See also Continental Congresses.

Congressman. A member of the legislative branch of the United States government,--strictly, a member of the house of representatives.

Congress of the United States. The senate and house of representatives.

Connecticut Reserve. A large district of land retained by Connecticut when the lands comprising the northwest territory were ceded to the United colonies (American confederacy). The district is described as the northeast part of Ohio, 120 miles from east to west, and 52 from north to south, comprising seven counties, and affording four million acres. Called also Western Reserve. See Northwest Territory.

Conservative. One whose aim is to preserve from innovation or radical change the existing institutions of the country, both civil and ecclesiastical.

Constitution. The established form of government in any country, state, or community, whether that be a body of written laws or be founded on prescriptive usage. In regard to political principles, constitutions are (1) democratic, as in the United States, where the sovereign power is vested in the people; (2) aristocratic, when the government is chiefly or entirely in the hands of certain privileged classes; (3) monarchical, when in the hands of one person; (4) of a mixed character, as in Britain, where the sovereign power is distributed over the king, lords, and commons.

Constitutional Union Party. A name adopted in 1860 by the remaining elements of the whig party. May 9, 1860, a convention met and nominated John Bell, of Tennessee, for president, and Edward Everett, for vice-president. The Bell-Everett ticket carried Kentucky, Tennessee, and Virginia, but received a very light vote in the north. This was the last vestige of the whig party.

Continental. A term that was used before the American declaration. It had special application to the colonies as a whole. In colonial times a meeting of delegates from the various colonies formed a continental congress. When Ethan Allen was asked by what authority he demanded the surrender of Ticonderago, he replied: "In the name of the great Jehovah and of the Continental congress!"

Continental Congresses. The first Continental congress, consisting of fifty-five delegates, from all the colonies except Georgia, met at Philadelphia, on the 5th September, 1774. This body, on behalf of the people, as subjects of the British power, framed a declaration of rights, and drew up an address to the king, another to the people of Great Britain, and a third to the colonies. The colonists demanded their rights, particularly in relation to a just share in the regulation of their own domestic affairs, and in imposing their own taxes; the right of a speedy trial by jury in the locality in which the offense should be committed, and the right to hold public meetings and petition as against arbitrary rule. The second Continental congress met at Philadelphia, 10 May, 1775, and adopted the appellation of the United Colonies. A petition was prepared and sent to England asking for a redress of grievances. The thirteen colonies were, therefore, organized into a federal union, and congress deliberately assumed the general direction of affairs. A declaration was drawn up, justifying the course of resistance to British oppression; a loan of money was authorized; the troops were formed into a continental army, and George Washington, a member of the congress from Virginia, was placed in command. The Americans had hitherto been contending, not for independence, but for constitutional liberty. See Declaration of Independence.

Contraband. In 1861, while General B. F. Butler was in command of Fortress Monroe, a number of slaves, having escaped from their master, were brought before him. Each was examined and then set at work for the benefit of the government. When they were applied for by confederate officers on behalf of the owner (Colonel Mallory), the general replied that he should detain the negroes as contraband of war.

Convention. A meeting or assembly of individuals. This term is more particularly applied to a formal meeting, or an assembly of delegates or representatives for the transaction of important business, civil or ecclesiastical.

Convention of 1787. The body of delegates from the original states, which met at Philadelphia, 25 May, 1787, to revise and perfect the fundamental laws of the confederacy. At that time the necessity of a more efficient general government was extensively felt, and after a session of about four months the convention agreed on the federal constitution. That instrument was transmitted by congress to the several states, in nearly its present form, and was, in 1788, ratified by eleven of them (afterward by the other two) and became the constitution of the United States. See Ordinance of 1787.

Coodies. A political body in the state of New York, in 1814, of which "Ahimeleck Coody" (Gulian C. Verplanck) was the leading spirit. He was a writer of articles, and endeavored to mold public sentiment in favor of the war then being waged against Great Britain (1812-14--the second war for independence). He attacked De Witt Clinton, and was answered by a sharp writer, who charged with all but a vocabulary of sarcastic terms, among which one characterizing the Coodies as the "spawn of federalism and jacobinism."

Coon. The popular emblem of the whigs in the campaign of 1844, when Henry Clay and Theo. Frelinghuysen were candidates for president and vice-president. Mr. Van Buren had been called "the sly fox of Kinderhook." In consequence of his previous candidacies, Mr. Clay had been spoken of as "that same old coon." The whigs were charged with hunting after "that same old coon." Hence the raccoon as an emblem. "A gone coon," said of one whose case is hopeless.

Copperhead. Northern sympathizers with the confederates were so-called, during the civil war of 1861-5.

Corn Right. A right to one hundred acres of land, that was acquired in early times by those who planted an acre or more of corn. In Virginia the privilege to so obtain land was called Corn-right.

Corporal's Guard. The men in congress who supported President Tyler after he had been renounced by the whigs, in 1841.

Cradle of Liberty. Faneuil hall, in Boston. The orators of the revolution raised their voices there against British oppression.

Credit Mobilier. In France, a general society established in 1852, upon the principle of limited liability, under the sanction of the government. The capital was fixed at 60,000,000 francs, divided into shares of 500 francs each. Objects of the society: To aid the progress of public works, and promote the development of national industry, making railways, managing gas companies, and, in fact, becoming a kind of universal trading association, for the buying up of the shares and bonds of existing trading societies and companies, for the purpose of consolidating them into one common stock, and for the transaction of general banking and brokerage operations. The funds for the carrying out of these diverse operations are, (1) the capital of the company, and (2) the deposits received from the society by the public. In the United States, congress passed an act chartering the Union Pacific railway, in 1862. In a speech, delivered in September, 1872, at Indianapolis, Mr. Greeley, as a presidential candidate, made statements substantially as follows: Congress resolved to aid the enterprise generously, and granted the right of way through the public lands, with the right to take materials from any part of the public domain. Then a large grant was made in aid of the road, and bonds of the government calling for $25,000 a mile were loaned to the company, and the first mortgage on the railroad taken therefor; thus the building of the road was provided for with public funds. In a few years, this enterprise having passed into the hands of scheming men, some being members of congress, another step was taken, and congress was prevailed upon to authorize a new loan of $25,000 a mile. A second mortgage of equal amount was taken on the road, and so the security of the first mortgage was destroyed. In a little while a private company was somewhere chartered, entitled the Credit Mobilier of America, and that private company, or ring, was composed of a number of active members of the Union Pacific railroad company, some of them members of congress. No list of this Credit Mobilier was ever published, or can be obtained. But these gentlemen proceeded to make contracts virtually with themselves, *i. e.*, the same men as officers of the Union Pacific railroad contracted with themselves as officers of the Credit Mobilier of America to construct the road at enormous prices, which absorbed both the bonds loaned by the government and the private loan of the company; this contracting with themselves to pay themselves twice the fair cost of entirely building and equipping the road, and after building the road with the proceeds of the money loaned by the government, they proceeded to divide among themselves the other bonds, equal to the amount which congress had made mortgage on the entire road. By these means twenty or thirty millions of dollars were divided among the parties, and after all that money was so divided and they were called upon to pay, they divided the bonds and built the road with the government bonds, which were a second mortgage on that company. "Now, you see," said Mr. Greeley, continuing, "these gentlemen who engineered through congress this project of making the road cost double what it should cost, and making half the cost a dividend appropriated among themselves, these gentlemen now appear before congress for additional advantages." In February, 1873, the committee appointed by congress to investigate the corrupt Credit Mobilier matter, made a report which amazed the people at large, and a long investigation grew out of this. As a consequence, Oakes Ames and James Brooks of the house were censured, and the reputations of several prominent politicians were somewhat damaged.

Covode Investigation. A committee authorized by the house of representatives to inquire into the chicanery of the Buchanan administration, in attempting to foist the Lecompton constitution upon the people of Kansas. An examination, after the appointment of the committee, 5th March, 1860, resulted in developing the truth of the charges of corruption. See Lecompton Constitution.

Dark Horse. No doubt that this phrase originated from the coloring of horses by jockeys in order to bring them into a race under different names and win the prizes. In politics, the successful nominee of a party who is little thought of as the nominee. Hayes, and Garfield were "dark horses." See Surprise Candidate.

From whence is to come the "dark horse?" Some say it will be Drummond, some say Hyde, some say Spring, and others Blaine. The man whom the ring has determined upon to lead the republican party is now engaged in the honest and peaceful occupation of a fisherman, and his name is William P. Frye.—Boston Post, Maine politics, 1882.

Declaration of Independence. The thirteen colonies slowly awoke to the idea of independence. Early in the struggle against Great Britain, any such design, though favorably entertained by New England, was disavowed by the other colonists, and by congress, July, 1775. The sentiment in favor of separation became more marked as the war was transferred to the south in May and June, 1776, and the Virginia convention instructed the delegates of that state in congress to introduce a resolution favoring independence. Richard Henry Lee presented the resolution, which was formally adopted, July 2. Pennsylvania, Maryland and New Jersey, before that date, had changed from the attitude of disfavor, and ordered their delegates to vote for the declaration. By the third of July, the delegates of South Carolina, who had opposed the measure, came forward and indorsed it. Delaware yielded her consent on the fourth of July, and on that day, the declaration of independence was passed, the New York convention refusing to vote, but afterward consented, and it thus became "The Unanimous Declaration of the Thirteen United States of America." Jefferson was the author of the Declaration of Independence.

Demagogue. A politician who attempts to gain the people over to his own selfish views by employing deceit and falsehood for that purpose; a charlatan.

Democracy. See Commonwealth.

Democratic Party. The theory of the old democratic-republican party was, popular government, with limitation of the powers of the general or federal government, in order not to restrict the rights of states in the management of local interests. In the last decade of the past century, the party assumed the name of republican, by which it was popularly known until about 1830, when the more radical portion separated from the conservative element, and assumed the name of national republican. The conservatives were called democrats, but that term being regarded as equivalent to republicans, they were known as republicans till about 1830. These parties, until after the election of Jackson, in 1828, claimed the name of republican. The friends of Adams were styled the administration wing, and those of Jackson, the opposition. The Jackson men afterward fixed upon the title of democrat, and there has been no further variation of the name of the party since. The democrats were successful in successive presidential elections until that of 1840, when the whigs, with General Harrison, came into power. President Harrison died in just one month after his inauguration, and the administration under John Tyler became democratic. The administration of James K. Polk was next in order, and then the whigs again succeeded in 1848, when General Taylor was elected. The democrats followed with the election of Franklin Pierce, in 1852, and James Buchanan in 1856. The attempt to force a pro-slavery constitution upon the territory of Kansas, was followed by a split in the democratic party. The popular Illinois senator, Stephen A. Douglas, assumed the leadership of the northern wing, while the pro-slavery men that formed the southern wing were led by the administration. In 1860 the democratic convention, which met at Charleston, April 23, failed to agree upon resolutions and candidates. There were fifty-seven ineffectual ballots, Mr. Douglas, for president, always leading. Many of the delegates withdrew from this convention and met in another hall, adopted resolutions, and adjourned to meet in Richmond, on the second Monday in June. The regular convention adjourned, May 3, to meet at Baltimore, June 18. In the Baltimore convention there arose a disagreement on account of the admission of delegates from the states which had withdrawn from the Charleston convention. The result of it was the withdrawal of a considerable number of delegates, including the chairman of the convention, Caleb Cushing, and Benjamin F. Butler. Stephen A. Douglas was then nominated for president, and Herschel V. Johnson, of Georgia, was afterward selected by the executive committee as candidate for vice-president. The delegates who withdrew from the convention at Baltimore, being joined by delegations which had been refused admission, assembled at Maryland institute, June 28, and put in nomination, for president, John C. Breckinridge, of Kentucky, and Joseph Lane, of Oregon, for vice-president. Those who had withdrawn from the Charleston convention met at Richmond, June 11, and adjourned from time to time until the seceders' convention at Baltimore had nominated Breckinridge and Lane, when those nominations were indorsed. The democratic party, thus divided, while the republican party had become a unit against slavery extension and for the union, went before the country with small chances of success. Mr. Douglas took the stump, and in a series of speeches in different sections of the country, expounded his views to great crowds of his countrymen. He was all but idolized by the free-soil democrats, who rallied to his standard with enthusiasm. At the election, the popular vote for Mr. Douglas was very great, but his electoral vote was small. The defeat of Mr Douglas and the democratic party by the republicans, with Mr. Lincoln as the successful candidate, proved a death-dealing disappointment to Mr Douglas, whose ambition to rise to the presidency was earnest, and seconded by the ballots of upward of one million three hundred and seventy-five thousand of his friends. In his dying days he made very explicit expressions of loyalty to the federal union and the government of the United States. He died on the 3d of June, 1861, in the forty-ninth year of his age. From March, 1861, to March, 1885, the republicans held the presidential office. 1885-'88, and again, 1893-'96, the democrats held it.

Deputation. A number of persons selected in order to represent the views of a larger body or company on any particular question, to lay their case before some person of influence or in office, or to act for them in any particular affair.

Don't give up the ship. Said by Captain Lawrence, commander of the United States Chesapeake, after he was mortally wounded, and was being taken below. His vessel was captured by the British ship Shannon, after an action thirty miles from Boston light, 1st June, 1813.

Dough-face. An epithet applied to the northern apologist for slavery in the south.

Draft Riots. A draft commenced in New York, 13 July, 1863, when a great riot broke out, and continued for three days, during which time the building in which the draft had begun was destroyed by fire, houses and stores were plundered, citizens were mistreated, colored persons were killed, a colored orphan asylum was burned, the inmates scattering in all direc-

tions for their lives; four hundred lives were sacrificed, and property worth $2,000,000 was destroyed.

Dred Scott Decision. A decision given by the United States supreme court, March 6, 1857, whereby Dred Scott, who had been claimed as a slave in a free state, was remanded to slavery. Of the seven judges, two declared for his freedom. By this decision the Missouri compromise of 1820 was declared unconstitutional, and thereupon arose the popular phrase, "Negroes have no rights that white men are bound to respect."

Emancipation. The act of setting free those persons held as slaves. President Lincoln issued his proclamation of emancipation, January 1, 1863.

Era of Good Feeling. An expression applied to the administration of President Monroe (1817-'25). The president started, 31 May, 1817, and visited the northern states, his journey continuing through several months. The people received him gladly, and the effect of his presence was long felt by all who, in honor of his time, bestowed the compliment of those magic words: ERA OF GOOD FEELING.

Excellency. A title conceded by many to the governors of states, foreign ministers, and the president of the United States. Not authorized by the national constitution, and by very few of the state constitutions. (See Commonwealth.)

The office of governor of the state is held in high esteem in Massachusetts. The man who reaches that position is assumed to be of noble origin. One of the great functions of Harvard is to recognize the dignity of "his excellency," and to confer upon him, with great pomp and honor, the degree of "Doctor of Laws." Every man who has been elected governor bears thenceforth in Latin a commission as doctor of laws.—Chicago Tribune, Nov. 10, 1882.

Executive. The head of the executive department of the government; as, the governor of a state, or president of the United States. Otherwise, the chief magistrate, or the king.

Execution of Assassins. David E. Harold, George A. Atzerott, Lewis Payne Powell, and Mrs. E. Surratt, accomplices of Booth in the assassination of President Lincoln, were hung, 7th July, 1865. Others were sent up to Dry Tortugas for life. Henry Wirz, for cruelty to union prisoners at Andersonville, was hung in Washington, 10 November, 1865. Charles Guiteau; for murder of President Garfield, was hung, 30 June, 1882. See Assassination of Presidents.

Faction. A term applied in a bad sense to any party in a state or country that offers uncompromising opposition to the measures of the government, or that endeavors to excite public discontent upon unreasonable grounds; one wing or division of a party.

Republican faction fights may this year give the democrats a majority in congress and a number of governors, but unless this faction fighting continues for two years longer the result of to-day will guarantee nothing for 1884.—New York Herald, Nov. 7, 1882.

Father of his Country. George Washington, patriot and first president of the United States, was so-called. He was commander-in-chief of the American armies—a man of the happiest union of good qualities. Born on his father's estate, in Westmoreland county, Va., 22 February, 1732, and after a life of unsullied glory, he died, 14 December, 1799.

Federal Government. A government formed by the union of several sovereign states, each state giving up a portion of its power to the central authority, and yet retaining its powers of self-government. The government of the United States is a federal government.

Federalist. The name of a political party in the United States, formed in 1788, the members of which claimed to be the peculiar friends of the constitution and federal government. The most distinguished leaders of the federal party were Washington, Adams, Hamilton, and Jay, and the leading federalist states were Massachusetts and Connecticut, supported generally by the other New England states. Opposed to this party, were Jefferson, Madison, Monroe, Burr, and Gallatin (republicans), who were called anti-federalists, and charged with being indifferent or hostile to the constitution and government. During the contests of the French revolution the federalists leaned to the side of England, the republicans to that of France. The dissolution of the federal party was hastened by reason of its opposition to the second war (1812) for independence This war came to pass principally from the unjust claims of Great Britain to the right of searching American vessels for deserters and British seamen. As a remedy for the evils which the federalists charged over against the government on account of the war, a convention was held (commencing 15th December, 1814) at Hartford, Conn. This body recommended certain measures to the legislatures of the eastern states, looking to a limitation of the power of the federal government over the militia of the states. It also proposed several amendments to the constitution. But the labors of the convention were brought to a close by the news of the treaty of peace between the United States and Great Britain, signed on the 24th, ninth day after the assembling of that body. The moral and visible effect of this convention was felt a little later when in 1820, the federal party was completely disbanded.

Fenian Movement. An organization started in the United States in 1858, and attributed to James Stephens, who commenced the work of fenianism in this country by taking advantage of the military organization of the states to have Irishmen armed, uniformed, and drilled. Before the war of 1861-5, there was formed a secret army of thirty thousand fighting men. The fenians fought bravely during that war, and toward the close of 1863, they assumed a civil constitution and established an Irish republic in America after the model of the United States, for the purpose of bringing about "the resurrection of Ireland to independent nationhood." This idea is attributed to John O'Mahoney, the first president. In January, 1865, the members of the fenian society resolved to include Ireland, England, and all its dependencies within the scope of their operations. Stephens and a strong band of organizers transferred their activity to Ireland. The first fenian revolutionists were arrested by the British government in September of that year. O'Donovan Rossa possesses the historic renown of having been first arrested. James Stephens, as the head center of the movement, was afterward arrested, and his escape from custody was affected by the aid of fenians. Since 1878, when the land league was formed, it is presumed that fenianism entered into the working power of the league, and is stronger now than the land league proper, as represented by Mr. Parnell. The first national congress of the fenian brotherhood was held in Chicago, 3d Nov., 1863, when about 15,000 fenians were represented.

Fifty-four Forty or Fight. An expression used during the northwestern boundary dispute that arose soon after President Polk's inauguration. The Oregon question, as it is called, was first noticed in a public manner by President Tyler in his message to congress, 5th December, 1842. The territory of the nation known as the Oregon territory, lying on the Pacific ocean, north of the forty-second degree of latitude, was claimed in part by Great Britain. In 1843, a bill was carried through the senate by a majority of one, for taking possession of the whole of the disputed territory, but the house refused to concur in this measure. In his message of 1843, the president (Tyler) asserted the claim on behalf of the United States, in regard to that territory, to the parallel of 54 deg. 40 min. north latitude, and James K. Polk was elected, in 1844, as one disposed to insist upon the 54 deg. 40 min. parallel as the boundary of Oregon. It was understood that the United States were to absorb the whole of the territory—the whole or none, "54-40 or fight." However; the new president felt that it was best to act in the light of previous efforts at compromise, in consequence of which the forty-ninth parallel was to be the northern boundary of the territory of the nation. Finally (18 June, 1846), all previous efforts having failed, an adjustment of the northwestern boundary dispute was reached by means of a convention, proposed by the British minister, which decided upon the forty-ninth degree of north latitude. From the standpoint of those opposed to compromise, this was "the back-down from 54-40."

Filibuster. A corruption of the English freebooter or buccaneers. "Filibustering," a cant term much used of late years in the legislative assemblies of the United States to designate the employment of parliamentary tactics to defeat a measure, by raising frivolous questions of order, calls to the house, motions to adjourn, etc., in order to weary out the opposite party and to gain time. "Filibusters," the name given to certain adventurers; the most noted filibuster was William Walker, who led an expedition against Nicaragua, in 1855, and succeeded in maintaining himself in that country for nearly two years, but was at length expelled by the union against him of the other Central American states. Walker was subsequently taken and shot at Truxillo, in Central America, in 1860, when engaged on another filibustering expedition.

Financial Panics. The financial history of the country was marked by distress in 1814, when United States treasury notes were seventeen per cent below par. The situation was aggravated by the peace party, whose leaders persuaded the Boston banks to require that the notes on southern banks, then in their possession, be redeemed. In 1819, the financial difficulties were very serious: paper money had run down to 59 per cent, there had been excess of importation, American staples had declined in foreign countries, cotton and breadstuffs were down 50 per cent, and there was general business depression. In 1821 the distress was great west of the Alleghanies, farmers were unable to pay their debts due to government at west land offices. Congress granted relief by permitting portions of land to be surrendered, and the money paid over to be applied on the remainder to secure it. In 1837, a crash came on the heels of a suspension of the New York banks; many other banks went down, corporations shut up their works, business houses failed, the products of the farm declined, and credit gave way for want of confidence. This crisis was due to excessive speculation, large importations, and business depression for want of capital. California felt the strain of depression in February, 1855. August 24, 1857, the Ohio Life Insurance and Trust company failed, many banks soon suspended payments, all owing to land and "railroad" speculation. September 19, 1873, the firm of Jay Cook & Co., of Philadelphia, failed, from which a general financial panic came to pass, destroying confidence, throwing working people out of employment, producing stagnation and misery. The causes assigned in this case were various, including reckless speculation and increasing extravagance of the people, too liberal importations, careless contracts, etc. In June, 1893, began a series of heavy bank failures all over the country, and a large number of business houses were driven to the wall. The Republican party attributed this crisis to the re-election of President Cleveland and to his tariff-reduction views; the Democrats blamed the long period of extreme protection and the existence of innumerable trusts. This crisis was not over yet in 1897.

Freedman's Bureau. A bureau that congress, 3d March, 1865, established for meeting the pressing needs of the freedmen, and helping them to secure some of the blessings of education. General O. O. Howard was at the head of this

commission. The freedman's bank, having been established after the war for the use of the emancipated, became, through reckless management, a failure in 1874. Through investigations made with regard to the matter, no blame could be charged to the commissioner.

Free Soil Party. A political party which, as an immediate result of the agitation of the Wilmot proviso, was formed in 1848. The party nominated Martin Van Buren for president and Charles Francis Adams for vice-president. These candidates received the support of nearly 300,000 free-soilers, but the whig party, composed of those who were dissatisfied with the conduct of affairs under the so-called democratic party, carried the election for Taylor and Fillmore. In 1852, the free-soil party named John P. Hale, of New Hampshire, for president, and George W. Julian, of Indiana, for vice-president. These candidates received 155,825 votes. The whigs and free-soilers—the latter having nominated Scott and Graham—were defeated by the straight-out democrats, and General Franklin Pierce, of New Hampshire, and William R. King, of Alabama, were elected to the offices of president and vice-president respectively.

And then the question of free soil, what shall be the fate of that? I presume there are here some free-soil men [Yes! yes! all free-soil]—I mean those to whom the question of extending or restricting slavery outweighs all other considerations.—Horace Greeley, New York, Sept. 27, 1848.

Fugitive Slave Law. A law enacted in 1850 as a part of the compromise measures of that period. It provided for the return of any slaves who might have escaped. This law was odious in the eyes of every anti-slavery man and woman of the north.

General Assembly. A representative body in which is vested the power to enact laws; as Illinois general assembly.

Gerrymander. To fix the political divisions of a state in such manner that one party may obtain an advantage for itself, as against its opponents. . . . Denounces the action of the legislature in redistricting (gerrymandering) the state solely in the interest of the democratic party as an attempt to disfranchise 190,000 voters, and as a crime against suffrage which should be rebuked at the polls at the next election.—Ext. Report Greenback Convention, Moberly, Mo., May 30, 1882.

Government. The three branches which constitute the government of the United States. These are—legislative, executive, and judicial. The following are quotations from the federal constitution:

LEGISLATIVE.

Article 1, section 1—All legistive powers herein granted, shall be vested in a congress of the United States, which shall consist of a senate and a house of representatives.

EXECUTIVE.

Article 2, section 1—The executive power shall be vested in a president of the United States of America. . . .

JUDICIAL.

Article 3, section 1—The judicial power of the United States shall be vested in one supreme court, and in such inferior courts as the congress may, from time to time, ordain and establish. . .

Grange, or Patrons of Husbandry. An organization of the agricultural interests. It originated in Washington, D C., in 1867, and the first grange was established at Harrisburg, Pennsylvania. The grange, as an order, is opposed to all the extreme and oppressive schemes of persons or classes acting on the present competitive system. With regard to co-operation, the grange is favorably disposed, and the national organization has reported in favor of incorporated associations of that class. The grange advises buying as far as practicable from the producer and manufacturer, and selling to the consumer, if possible, and declares emphatically in favor of buying and selling for cash. It is a rule of the grange to "neither fear nor court competition." As a political party, the grangers met with the laboring men at Cleveland, Ohio, in March, 1875, and adopted a platform of principles as expressive of the views of the grange party throughout the country. The order has many branches in the various states of the union. Men and women stand upon an equal footing as members.

Greenback. A form of paper money, issued by the federal government. The act authorizing the issue of greenbacks says that they "shall also be lawful money and legal tender." The honor of the addition of the term greenback to our vocabulary is justly attributable to Salmon P Chase, secretary of the treasury, 1861-4. It was chiefly his policy that carried the nation through the war of that period. "Greenbacker," an advocate of greenback or paper money.

When he was nominated by the greenbackers this fall, everybody laughed, but those laugh best who laugh last—Butler thinks.—Chicago Journal, Nov 9, 1882.

Greenback Republican, or Democrat. A republican or a democrat disposed in favor of legal tender (government) paper money.

This increases the republican membership of the house to 149, or, counting the six greenback republicans, to 155.—Chicago Inter Ocean, June 3, 1882.

Gubernatorial. Pertaining to a governor.

"Hail Columbia." National ode of America, written by Joseph Hopkinson, in the summer of 1798, for a young actor, named Fox, to render on his benefit night.

Half Breeds. An epithet, used to distinguish those of the republican party who were friends of Garfield and his administration, followers of Blaine, and other prominent men belonging to the Garfield faction. Opposed to Stalwarts, which see. (See extract under the head of Independents.)

The election to-day is properly to be regarded as a pitched battle between the stalwart and the half-breed wings of the republican party.—New York Herald, Nov. 7, 1882.

Half Slave and Half Free. Said by Abraham Lincoln. See Republican party.

Hard Cider and Log Cabin Campaign. The campaign of 1840, which resulted in the election of William Henry Harrison for president, and John Tyler, for vice-president, was one of the most exciting, jolly, and interesting of any in the history of the United States. The democrats nominated Mr. Van Buren for re-election, and the abolitionists named James G. Birney as their candidate for president. The orators and journals of the democratic party ridiculed the whig candidate for president (Harrison), and called him an old granny. One of the editorial fraternity unwittingly wrote: "Give him a log cabin and a barrel of hard cider, and he will be content on his farm in Ohio, whose affairs only is he capable of managing." Thereupon the whigs took up the cry of hard cider and log cabin, and the latter became most appropriate and effectual means in joining the issue in favor of the whigs. Log cabins were raised and hard cider was drunk at the various meetings; a paper with the title of Log Cabin was published by Horace Greeley, and the music of Harrison glee-clubs was echoed and re-echoed from hill to dale. At the larger meetings or barbecues, the people were fed during the day without charge, on which occasions animals were roasted bodily: log cabins and barrels of hard cider were mounted on wheels and drawn by oxen or horses in the processions. It was during this campaign that the expression "Tippecanoe and Tyler too" was sounded in song, a stanza of which is here given.

"What has caused this great commotion-motion-motion
Our country through?
It is the ball a-rolling on
For Tippecanoe and Tyler too,
For Tippecanoe and Tyler too;
And with him we'll beat little Van;
Van, Van, Van is a used-up man,
And with them we'll beat little Van."

To this song was added those other well-known lines, which are commemorative of the whig victory in the state of Maine—

"O, have you heard how Maine went, went, went?
It went h—l bent
For Governor Kent,
For Tippecanoe and Tyler too," etc.

Hard Pan. In financial affairs, hard money—gold and silver—or hard-money basis. "Coming down to hard pan," said of a return to specie payments.

Hard-shell Democrats. See Soft-shell Democrats.

Hickory. See Old Hickory

"Higher Law." An expression used by William H. Seward, in a speech on freedom in the territories, delivered in the United States senate, 11 March, 1850

"It is true, indeed, that the national domain is ours. . . . But there is a higher law than the constitution which regulates our authority over the domain, and devotes it to the same noble purposes. The territory (California) is a part, no inconsiderable part, of the common heritage of mankind, bestowed upon them by the creator of the universe. We are his stewards, and must so discharge our trust as to secure in the highest attainable degree, their happiness."

Honorable. Members of both houses of congress, and of state legislatures, are so-called from courtesy The title is extended to heads of departments of the government.

Hotheads. Red-hot partisans.

Ten days of the time of congress and thousands of dollars of public money have been misspent and wasted by Bill Springer and his fellow hotheads and demagogues in bolstering up a most scandalous attempt to cheat a majority of the voters of a congressional district out of representation, etc.—Chicago Tribune, June 5, 1882.

House. See Senate.

Hunkers. As pertaining to the democratic party of New York, in 1847, a separate body of men who favored the election of General Lewis Cass to the presidency. Opposed to the barnburners, who nominated Mr. Van Buren. See Barnburners.

Impeachment of President Johnson. Articles of impeachment were agreed upon by the house, 3d March, 1868, and presented to the senate on the 5th. Specifications were based upon the president's removal of Secretary Stanton in violation of the tenure of office bill, his expressions in public speeches of contempt for congress, declaring the thirty-ninth not a constitutional congress, and his hindrance of the execution of some of its acts. The house of representatives has sole power of impeachment, and the senate has sole power to try all impeachments (see art. i, secs. 2 and 3, const.) The trial began 23 March, and closed 26 May. In the senate the vote stood: guilty, 35; not guilty, 19. So the president was acquitted.

Independence, Declaration of. See Declaration of Independence.

Independents. Those who take a stand regardless of party, and who are not subject to bias or partisan influence. The term is often applied to those who break away now and then but do not entirely abandon their party.

In Pennsylvania the independents deliberately made up their minds to turn the state over to the democrats rather than to see their party used for the benefit of one man.—Chicago Journal, Nov. 9, 1882.

As in all civil wars, a good many people who heartily say, "A plague on both your houses," are yet forced to take sides, and this we see some ludicrous spectacles, such as the independents and civil service reformers voting with the half breed machine, and marching in effect under the banner of Mr Blaine, who has assumed the leadership of the half breed army.

. . . . . .

The independents who unwillingly vote with the Blaine machine to defeat the Arthur or Cameron machine still give no signs that they are ready to abandon the republican party.—New York Herald, Nov. 7, 1882.

Inflationist. One in favor of increased issues of paper currency.

Iron-clad Oath. The oath which those engaged in the late war against the federal government were required to take, in order to regain their rights of citizenship. So-called from its being distasteful to them.

"Irrepressible Conflict." Said by William H. Seward. See Republican party.

Kansas and Nebraska. After the proposed compromise of 1849, which was adopted in congress in 1820, (see Missouri Compromise), the slavery question remained in abeyance until 1846, when David Wilmot, a representative from Pennsylvania, offered what became known as the Wilmot proviso (which see). This proposition was followed by the Compromise of 1850 (which see), at which time another temporary settlement was effected. January 23, 1854, the slavery question was reopened in congress by Stephen A. Douglas, senator from Illinois, who reported a bill (called the Kansas-Nebraska bill) organizing territories of Kansas and Nebraska. The effect of one of the sections was to repeal the Missouri compromise law. The proposed bill caused intense feeling in the nation, but was adopted by the senate, March 3, and by the house May 20, being approved by President Pierce, 31 May, 1854. The doctrine of popular sovereignty, as specially advanced by Mr. Douglas, was involved in the Kansas-Nebraska bill. It was the idea of the Illinois senator, who afterward received the name of "little giant," that the people of each state or territory should be allowed to govern themselves in their own way, and he opposed the Lecompton constitution because it did not represent the will of the people of Kansas. In the presidential campaign of 1860, the "little giant" was nominated as candidate for president, and led off under the political doctrine he had promulgated, that congress had no power either to sanction or forbid slavery in the territories. The struggle for and against slavery in Kansas was terrible, and continued until the beginning of the civil war, in 1861, when that state came into the union. See Border Ruffians.

King Cotton, or Cotton is King. A phrase much used by southern people up to and a year or two after the breaking out of the war of 1861-5. They said the north could not do without cotton, and that it would eventually triumph.

Know-nothings. The name of a secret political party which originated in 1853. The party, or rather society, as stated by the New York Times, was first formed by a person of some notoriety, who called himself Ned Buntline—the writer of sea stories. Ned was once a midshipman in the United States navy, but left the service and commenced the business of founding a secret order, of so exclusive a character that none were to be admitted as members whose grandfathers were not natives of the United States. Ned gave instructions to his followers to reply to all questions in respect to the movements of the new party "I don't know." So they were at first called don't-knows, and then know-nothings, by outsiders. The Crusader, a party organ, printed the principles of the society as follows: Repeal of all naturalization laws; none but native Americans for office; a pure American common school system; war to the hilt on Romanism. In the year 1855-6 the slavery question had assumed paramount importance, and the civil war between the free state men and the pro-slaveryites in the territory of Kansas, so overshadowed the public mind, that foreign citizenship was forgotten, and the know-nothings as a body disappeared. The nearest approach to know-nothingism or Americanism, in 1856 (as indicated by the name), was the American party, whose nominees for president and vice-president were Millard Fillmore, and Andrew J. Donelson of Tennessee. In that year there was a general excitement, and crush of political elements, which resulted in the complete annihilation of the American and whig parties. Thereupon rose the Republican party, which see.

Kuklux Klan. A secret political organization that arose from the prejudices of unreconciled persons in some portions of the south. It originated in the state of Tennessee, presumably, early in the year 1868, and soon afterward extended its membership and mischievous influence over various sections. The alleged object of the klan was to redeem the south. After its fashion it opposed the enforcement of the reconstruction acts, and endeavored to maintain the dominion of the white race as against the colored race, the male portion of which latter were enfranchised by effect of the fifteenth amendment, 30 March, 1870. Within a few months of its inception the numbers of the various divisions of the klan were increased to a total of 500,000 persons. Later on, the political aspirations of the klan were given up, and members of the order abandoned themselves to schemes of outrage and murder. May 31, 1870, a congressional act was passed, which provided for the protection of the lately-enfranchised colored men, as against the "bulldozing" propensities of the kuklux. In February following a stringent act was passed for a similar purpose, and on the third day of May, 1871, a proclamation against the klan was issued by President Grant. During the next year (1872) efforts were made to expose the klan. A committee was appointed by congress to make an investigation of the kuklux mystery. Many witnesses were examined by this committee, and the facts were revealed as pertaining to the existence of the kuklux bands and their horrible doings.

Lecompton Constitution. An instrument that was framed in convention at Lecompton for the state of Kansas, in September, 1857. It provided for the introduction of slavery, and at an election in December about 6,500 votes (inclusive of many fraudulent ones) were cast for it. The free state men refrained from voting, until the election, 4th January, 1858, when the Lecompton constitution was voted down by 10,000 majority. In July a free constitution was adopted at Wyandot.

Legal Tender. See Greenback.

Legislature. The body or bodies in a state or in the United States vested with the power of making laws: thus, the governor and general assembly constitute the legislature. The president, house and senate constitute the national legislature. See Government.

Let the Union Slide. An expression used during a debate in congress by General Banks.

Liberal Republicans, and Democrats. Those members of the old parties who participated in the new departure movement of 1872, when Horace Greeley was nominated for president by the liberal republicans at Cincinnati, and the democrats at Baltimore. The liberal republican nominee for vice-president, B. Gratz Brown, of Missouri, was also indorsed by the democrats. These candidates were defeated at the election by the regular republicans, who had renominated General Grant.

Liberty Cap. A peaked cap placed on the head of the goddess of liberty. "Liberty Pole," a flag-staff surmounted with the symbols of liberty.

Liberty Party. See Abolition of Slavery.

Little Giant. Stephen A. Douglas, who was of small stature, but a great orator. See Kansas and Nebraska, and Democratic party.

Lobby. The individuals who frequent the space in a hall of legislation not used by regular members. (See Logrolling.)

Indeed, the lobbyists and logrollers around and in congress are accustomed to reckon upon the thermometer in the middle of June every other summer, much as they reckon on twelve o'clock, March 4, in the alternate years.—New York Sun, 1882.

Locofoco. A term applied to the ultra democracy or tory party in the United States. Lucifer matches were termed locofocos, and the application of the word to this particular political party arose thus: In 1834, a certain number of the extreme democracy met at Tammany hall, New York, and there happening a great diversity of opinion, the chairman left his seat, and the lights were extinguished, with a view to dissolve the meeting; but those in favor of extreme measures produced locofoco matches, rekindled the lights, continued the meeting, and accomplished their object.

I ask these (free-soilers) what hope they have of keeping slavery out of California and New Mexico with General Cass president and a locofoco congress?—Horace Greeley, New York, Sept. 27, 1848.

Logrolling. A custom peculiar to lumber regions. In the logging camps of Maine, the several parties help each other at logrolling. In politics, the term denotes an exchange of votes between parties, in order to carry through extravagant measures in which they are interested.

With all his extravagant notions, General Grant smothered a bill of this kind (river and harbor), when only one-third of the present amount was appropriated; and the respectable press, without distinction of party, has been more decided in condemnation of this logrolling jobbery, by means of which millions are annually squandered and stolen, than of any other measure before congress.—New York Sun, May 20, 1882.

Machine. The body of politicians belonging to any party, who aim to use the people for selfish purposes, instead of serving them in their offices as they should.

He (Gov. Cornell) was singled out for defeat by the Arthur-Conkling machine because he had declined to use his official influence in favor of Conkling's re-election to the senate and because he had broken away from the machine. . . . The republicans of New York have registered their protest against federal and machine interference with an emphasis that makes it final.—Chicago Tribune, Nov. 1882.

It may be said of this that it is the way bosses of election machines always talk. The shrewd boss always says "the people" when he means the machine, or the cabal of professional politicians who manage the machine.—Chicago Times, Nov. 15, 1882.

Maine Law. A law enacted in 1846 and amended in 1851 in the state of Maine, being the first to prohibit the sale of intoxicating liquors, and becoming celebrated for her legislation on this subject through the active efforts of General Neal Dow. The Maine law was adopted by other states, notably Kansas. Out of 842 cities and towns in Illinois, 645 were no-license places in 1880.

Mason and Dixon's Line. A line 39 degrees, 43 minutes and 26.3 seconds north latitude, established in 1764-7, by Charles Mason and Jeremiah Dixon, two English mathematicians and astronomers, in order to decide the disputed question of boundary between Pennsylvania and Maryland.

Mass Meeting. A general meeting called for some special purpose; first talked of during the political campaign of 1840, when Harrison was elected president. The term now denotes any large meeting without regard to party.

Message. In the United States, a communication by a governor or the president, on state affairs, to the legislature.

Mississippi Scheme. In August, 1717, John Law, a financier and noted gambler, obtained permission from France to start the Mississippi company, a scheme which had for its object the paying off the national debt, and the enriching of its subscribers. Finally, Law's establishment was created the Royal bank in 1718, and, in 1720, he was nominated comptroller-general of finance. By assigning Louisiana to the Bank of France, 200,000 shares of £25 each were added to the 1,200 shares of £250 each, which latter were for its legitimate purposes. Afterward the farming of tobacco, and the exclusive trade to India were conferred, on which 50,000 new shares were created, and finally it consisted of 600,000 shares. The project became extravagantly popular, and every one appeared anxious to convert his gold and silver into paper; but the bubble at length burst, and many thousands of families, once wealthy, were reduced to poverty. Law became the object of general execration, and was obliged to quit France. He wandered about Germany during several years, and died in indigence at Venice in 1729. See South Sea Bubble.

Missouri Compromise. So-called from an act of congress passed in 1820, and approved by President Monroe, 6th March of that year, by which

Missouri was permitted to enter the union as a slave-holding state, with the agreement that slavery should be forever prohibited in the territories of the nation lying north of latitude 36 degrees 30 minutes.

Monroe Doctrine. In 1822, during the presidency of James Monroe, the Spanish-American colonies having fought their way to independence as against Spain, they were recognized as an independent power by the United States. In his annual message to congress in 1823, the president proclaimed the celebrated doctrine of non-interference, as follows: "That as a principle the American continents, by the free and independent position which they have assumed and maintained, are henceforth not to be considered as subjects of future colonization by any European power." This doctrine is attributed to Adams, who was secretary of state under Monroe.

Morgan. "He's a good enough Morgan," was said by a prominent politician upon being reminded that the dead body found in Niagara river would not pass for Morgan. The phrase is applied to a real or supposed trick or imposition, particularly of a political nature. See Antimasonry.

Mormons, "Mormon War." A sect of religious fanatics that has arisen within the present generation, and gained over many converts. Its founder was Joseph Smith, an American. Brigham Young succeeded, after the death of Smith, to the post of prophet, and retained it until his death, at Salt Lake City, 29 August, 1877. In February, 1857, an armed body of Mormons dispersed the United States district court, in Utah, and openly defied the laws of the nation, because their territory was not admitted as a state. President Buchanan appointed Colonel Cumming governor of the territory, and sent troops to suppress the rebellion. Young issued a manifesto, and determined on resistance to national authority, but when the governor arrived there, in April, 1858, Young concluded to surrender, and so the "Mormon war" ended. After remaining for a time, the troops, in May, 1860, left the territory.

Nation. The country at large. More stress has been laid on this term by Americans since the war of 1861-5.

National Greenbackers. The advocates of legal tender or government money.

> I demand that that dollar shall be issued by the government alone. . . . I want that dollar stamped upon some convenient and cheap material. . . . I also desire the dollar to be made of such material for the purpose that it shall never be exported or desirable to carry out of the country. . . I desire that the dollar so issued shall never be redeemed. . . . For convenience only, I propose that the dollar so issued shall be quite equal to, or a little better, than the present average gold dollar of the world, . . . so that when all the property of the country adjusts itself to it as a measure of value it shall remain a fixed standard forever.—N. Y. Herald report speech of General B. F. Butler, 1875.

Native Americans. The name of a political party that had a short existence, from 1844, and was founded upon the notions of individuals who advocated the rights and privileges of persons born in the United States, as opposed to those of foreigners. It proposed an extension of the term of residence required by law preceding admission to full citizenship from seven to twenty-one years. This party gave way before the know-nothings and the American party that followed in 1853 and 1856 respectively. See Know-nothings.

Naturalization. The act of conferring upon an alien the rights and privileges of a native inhabitant or citizen. Aliens may become citizens of the United States after residing in the nation five years. First naturalization act in the colonies was that passed by the assembly of Maryland. A law of this kind was passed by congress, 24 March, 1790.

Negro Exodus. A movement from the south to the state of Kansas and other northern states, commenced in March, 1879, and continued for several years; caused no doubt by the hard conditions of living in the south.

New England Confederation. The union formed by the colonies for self-protection as against the Indians and French, in 1643.

Nicknames of States, Cities and People—

Arkansas—Bear state.
Atlanta—Gate city.
Baltimore—Monumental city, from the grand monuments.
Boston—Athens of America. The Hub.
Brooklyn—City of Churches.
Buffalo—Queen city of the lakes.
California—Golden state.
Canada—Canuck; a Canadian is so-called. Also written Cannuck, and K'nuck, a French Canadian.
Chicago—Garden city.
Cincinnati—Queen city of the west. Porkopolis.
Cleveland—Forest city.
Colorado—Centennial state.
Columbia—Palmetto city; the capital of South Carolina is so-called from the arms of the state, which contain a palmetto.
Connecticut—Blue-law state. Nutmeg or Free stone. Land of steady habits.
Delaware—Diamond state. Blue Hen.
Detroit—City of the straits.
Florida—Peninsula state.
Georgia—Empire of the south. Crackers.
Gulf states—Florida, Alabama, Mississippi, Louisiana, and Texas.
Illinois—Prairie or Sucker state. Natives called suckers from the habit, in early days, of sucking water from crawfish holes with hollow weeds. Southeastern portion called Egypt, from fertility of the soil, and alleged mental darkness.
Indiana—Hoosier, a corruption of the term husher, applied to rough men from Indiana who exhibited a disposition to hush up their opponents. Applied by the Kentuckians to neighbors in Indiana who respond to a knock on the door, "Who's yere?"
Indianapolis—Railroad city.
Iowa—Hawkeye state, from old Hawkeye, an Indian chief.
Jayhawker—A cant name for a lawless or other soldier not enlisted.
Kansas—Jayhawker, or Garden of the west.
Kentucky—Blue grass, or Dark and bloody ground. Cornerackers.
Keokuk (Iowa)—Gate city, from its position on the Mississippi river, a natural center of navigation.
Louisiana—Pelican state. Creole.
Louisville—Falls city.
Lowell (Mass.)—City of spindles.
Maine—Pine Tree state.
Massachusetts—Original name, Massachusetts Bay. Hence, Bay state.
Michigan—Wolverine.
Minnesota—Gopher, or North Star state.
Mississippi—Bayou state.
Missouri—Bullion state, from Senator Benton, who was partial to coin money. He was called Old Bullion. Natives are nicknamed Pukes.
Montreal—City of the Mountain and the Rapids.
Nashville—City of Rocks.
Nevada—Silver.
New Brunswick—Blue Noses.
New Hampshire—Granite state.
New Haven (Conn.)—City of Elms.
New Jersey—Jersey Blues.
New Orleans—Crescent city, because of its shape.
New York—Gotham, so-called from the alleged odd erudition displayed by its inhabitants. A descendant of one of the old Dutch families was called a Knickerbocker. (New York was first settled by the Low Dutch, in 1614.)
New York (state)—Empire, or Excelsior. Knickerbocker.
North Carolina—Old North state. Turpentine. Tar Heels.
Nutmeg State—Connecticut, on account of the story that wooden nutmegs are manufactured there for exportation.
Ohio—Buckeye state, from the buckeye tree which grows there.
Oregon—Web-foot state.
Pennsylvania—Keystone state, from its central position as regards the other original states.
Philadelphia—Quaker city. City of Brotherly Love.
Pittsburgh—Iron city.
Portland (Maine)—Forest city.
Quebec—Gibraltar of America.
Rhode Island—Little Rhody.
San Francisco—City of the Golden Gate.
Springfield (Ill.)—Flower city.
South Carolina—Palmetto state.
St. Louis—Mound city, from the mounds found there before the city was built.
Tennessee—Mudheads, the natives of that state are so-called. Big Bend state.
Texas—Lone Star, from the single star in the center of the flag of that state. Beetheads.
Toronto—City of Colleges.
Up-country—In New Hampshire, used on the coast.
Utah—Mormon.
Vermont—Green Mountain state.
Virginia—Old Dominion. When a colony, the king called it "The Colony and Dominion of Virginia." Mother of States.
Washington—City of Magnificent Distances.
West Virginia—Panhandle state.
Wisconsin—Badger state.

North. In a political sense, the northern states, or those states lying north of Mason and Dixon's and the Missouri compromise line.

North Americans. Those of the American or know-nothing party in the north who were opposed to slavery.

Northwest Territory. The colonies of Virginia, New York, Massachusetts, and South Carolina, at an early day, acquired claims to lands extending from the Atlantic to the Pacific. In 1783, congress urged upon these colonies the necessity of yielding their special claims in favor of the United colonies. Virginia accordingly ceded her claims to the northwestern territory in March, 1784. The claims of New York were likewise ceded to the United colonies, and the western bounds of that colony were described by "a line from the northeast corner of the colony of Pennsylvania, along the north bounds thereof, to its northwest corner, continued due west until it shall be intersected by a meridian line, to be drawn from the forty-fifth degree of north latitude, through a point twenty miles due west from the most westerly bent, or inclination of the river, or strait of Niagara; thence, by the said meridian line, to the forty-fifth degree of north latitude, thence by the said forty-fifth degree of north latitude." Massachusetts ceded her claim, in April, 1785, to all lands west of the line above indicated. Connecticut, in September, 1784, ceded all lands within the limits of her grant lying 120 miles west of the western boundary of Pennsylvania. South Carolina, in August, 1787, surrendered all her right to lands west of the chain of mountains, which separates the eastern from the western waters. So the United colonies absorbed all the lands northwest of the Ohio, and a government for the northwest territory became imperative. This latter was effected by the celebrated Ordinance of 1787, which see. See Connecticut Reserve.

Nullification. Diverse interests which involved the northern and southern sections of the United States in frequent and exciting disputations and contentions, were clearly indicated in the single instance of the "nullification movement." During the first term of President Andrew Jackson, the tariff question assumed quite formidable proportions. The south had no manufactures to foster, and possessed a staple article which it desired to sell, therefore it

was opposed to a protective tariff. On the 21st to 25th January, 1830, Robert Y. Hayne, coajutor of John C. Calhoun, and senator from South Carolina, delivered his great speech in favor of nullification, and the celebrated reply of Daniel Webster was made on the 26th. President Jackson, at a banquet, 13th April, offered the famous toast: "Our federal union: it must be preserved." In 1832, having reached the point of extreme opposition to the tariff, or the increased rate of duties, which congress had laid, the state of South Carolina, in convention, November 19, resolved that the tariff acts were unconstitutional and void. That state at once prepared to resist the national authority by force of arms. President Jackson, having been re-elected, in 1832, was in office, and determined to execute the laws, which he did by proclamation, issued December 10, and an order for General Scott to proceed to Charleston with all the national troops under his command. He also sent a vessel of war to that port, and had the leaders of the movement informed of his intention to seize and hang them as soon as they should fire the first gun against the national authority. The danger of disunion was, for the time, averted. Henry Clay proposed a compromise measure in the form of a tariff bill, which provided for a gradual reduction of duties during the following decade. The measure became a law, March 2, 1833. See State Rights.

Office-holder. One who holds an office under government. Often used as a term of reproach. "Office-seeker," one who strives to get a public position or office.

Old Abe. Abraham Lincoln was so-called. During the war of 1861-5 colored people of the south called him Massa Linkum.

Old Fogy. One who is not up to the spirit of the age.

Old Hickory. General Jackson, president of the United States. So-called from his tough nature, and his intelligent firmness. Parson Brownlow was called the hickory unionist.

One-horse. A term applied to any small concern; as a one-horse bank, one-horse town, etc.

The twin curses of Kansas, now that the border ruffians have stopped ravaging her, are land speculation and one-horse politicians.—Horace Greeley, 1859.

On to Richmond. A phrase believed to have originated with Mr. Fitz Henry Warren, associate editor of the New York Tribune, who wrote it, "Forward to Richmond!" The expression was popularized as above.

I wish to be distinctly understood as not seeking to be relieved from any responsibility for urging the advance of the union grand army into Virginia, though the precise phrase, "Forward to Richmond!" is not mine, and I would have preferred not to iterate it.—Horace Greeley, July 24, 1864.

Ordinance of 1787. The celebrated ordinance and articles of compact, as framed by the congress of the American confederacy. By the adoption of this measure, 13 July, 1787, a basis was established for the government of the vast northwest territory. The articles of the compact provided for religious freedom, the benefits of the writ of habeas corpus, trial by jury, etc.; for the encouragement of schools; for just treatment of the Indians; and by the sixth and last article forbade any "slavery or involuntary servitude except for crime," within the bounds of the territory. Arthur St. Clair was elected by congress, 5th October, 1787, as the first governor of the northwest territory. See Northwest Territory.

Origin of the Names of States—

Alabama comes from a Greek word, signifying "The land of rest."

Arkansas is derived from the Indian word Kansas, "Smoky Waters," with the French prefix of ark, "a bow."

California, from a Spanish romance, in which is described "the great island of California where an abundance of gold and precious stones are found."

Colorado, ruddy or blood-red, from the color of the water of Colorado river.

Connecticut's was Monegan, spelled originally, Quon-eh-ta-cut, signifying "a long river."

Delaware derives its name from Thomas West, Lord De la Ware, governor of Virginia.

Florida gets its name from Kasquas de Flores, or "Feast of the Flowers."

Illinois' name is derived from the Indian word "Illini," men, and the French affix "ois," making "Tribe of men."

Indiana's name came from that of the Indians.

Iowa signifies, in the Indian language, "The drowsy ones."

Kansas is an Indian word for smoky water.

Kentucky, also, is an Indian name, "Kain-tuk-ac," signifying, at the head of the river.

Louisiana was so named in honor of Louis XIV.

Maine takes its name from the province of Main, in France, and was so-called in compliment to the queen of Charles I., Henrietta, its owner.

Maryland receives its name from the queen of Charles I., Henrietta Maria.

Massachusetts, from the Indian language, signifying the country about the great hills.

Michigan's name was derived from the lake, the Indian name for fish-weir, or trap, which the shape of the lake suggested.

Minnesota, an Indian word for "Cloudy water."

Mississippi derived its name from that of the great river, which is, in the Natchez tongue, "The Father of Waters."

Missouri is an Indian name for muddy, having reference to the muddiness of the Missouri river.

New Hampshire—first called Laconia—from Hampshire, England.

New Jersey was named by one of its original proprietors, Sir George Carter, after the island of Jersey in the British channel, of which he was governor.

New York was so named as a compliment to the Duke of York, whose brother, Charles II, granted him that territory.

The Carolinas were named in honor of Charles I, and Georgia in honor of Charles II.

Ohio is the Shawnee name for "The beautiful river."

Oregon, from its river, in Indian meaning "River of the West."

Pennsylvania, as is generally known, takes its name from William Penn, and the word "silvania," meaning woods.

Rhode Island gets its name from the fancied resemblance of the island to that of Rhodes in the ancient Levant.

Tennessee is an Indian name, meaning "The river with the big bend."

Vermont, from the Green mountains. (French, *verd mont.*)

Virginia gets its name from Queen Elizabeth, the unmarried, or Virgin Queen.

West Virginia is simply a geographical designation. From its shape, the northern part is called "Panhandle state."

Wisconsin's name is said to be the Indian name for a wild rushing channel.

Peculiar Institution. Said of negro slavery, which was peculiar to the south.

Pickings and Stealings. Perquisites of office, which are not always honestly obtained.

Platform. A declaration of principles to which members of a political party declare their adhesion.

Political Capital. The means of political advancement.

Popular Sovereignty. The right of the whole people to participate in forming the constitution, and enacting the laws under which they are to live and by which they are to be governed. "Squatter sovereignty," the right of squatters in a territory of the United States to form and regulate their own domestic relations in their own way; the squatter sovereigns of California voted against slavery, and entered the union as a free state. See Kansas and Nebraska.

Pre-emption Right. The right given to settlers of public lands, to purchase them in preference to others. In order to maintain this right, the pre-emptor must have erected a house or entered upon the work of improving the land, of which he has taken possession.

President. In the United States, the chief executive of the nation.

Prohibitionist. One in favor of prohibiting by law the sale of alcoholic beverages.

Pro-slavery. In favor of slavery.

Rag Baby. The idea of making greenbacks the legal, if not the only, money of the nation. Opposed to national-bank money. The greenbackers regard the precious metals as cumbrous and expensive articles for currency. See National Greenbackers.

Rag Money. Paper money. This term was applied to the greenback currency by the hard-money press.

Rebellion, War of. See Slavery War.

Red Dog. An epithet applied to certain bank-notes, upon the back of which the form of a stamp was printed in red ink.

West of Lake Michigan we never had a paper dollar that was worth exactly as much as a gold dollar. . . . Red dog and stump-tail were the descriptive terms applied by us to our currency before the war.—D. H. Wheeler, March 5, 1868.

Republican Party. The anti-slavery party that rose into vigorous life during the political upheaval of 1856. The name has been used several times in the history of American politics. (See Democratic Party.) The democrats were the political friends of the south, or of slavery. The republicans were their political opponents. Previous to its organization in 1856, the elements of the republican party opposed the extension of slavery, and generally, were in favor of abolition. The first national convention met at Philadelphia, June 17, of the year named, and nominated Colonel John C. Fremont, of California, for president. William L. Dayton, of New Jersey, was chosen for vice-president. The nominations were made unanimous. The democrats had previously designated their candidates, James Buchanan, of Pennsylvania, for president, and John C. Breckinridge, of Kentucky, for vice-president. The campaign following these and other nominations, was one of great excitement, which the war in Kansas tended to inflame. At the election the republicans polled a very large popular vote, and firmly established themselves as the most formidable party in opposition to the national democracy. The democratic administration that followed was marked by the Dred Scott decision—odious to the republicans—the approval of the Lecompton constitution by President Buchanan, which was as odious, and the execution of John Brown, which aroused the feelings of the abolitionists. Mr. Lincoln, at Springfield, 17 June, 1858, announced that the government could not permanently endure half slave and half free; and later, October 25, in a speech at Rochester, Mr. Seward declared, as between slavery and freedom, there existed an irrepressible conflict. These phrases were often repeated by the republicans, and the southern democrats took notice of them as declarations utterly hostile to the institution of slavery. In the early part of the year, Senator Douglas, of Illinois, the great northern ally of the southern democracy, took issue with the administration on account of the attempt of the ultra democrats to force a pro-slavery constitution upon the people of Kansas. Mr. Buchanan had indorsed the Lecompton scheme, as indicated, and the opposition of Mr. Douglas had the effect to weaken the democratic party in the north. In the elections immediately following this remarkable contest, when most members of the thirty-sixth congress were chosen, the republicans showed increased strength, and the democratic majority of the house was again overthrown. During the year 1859, the breach widened between the north and south, and in

1860, the republican party, all solidified and strong, entered the presidential campaign with renewed vigor. The republican national convention met in Chicago, May 16, and on the 18th the nomination of Abraham Lincoln, of Illinois, for president, and Hannibal Hamlin, of Maine, for vice-president, was made unanimous. Opposed to Lincoln and Hamlin, were Douglas and Johnson (Douglas democracy), Breckinridge and Lane (Breckinridge democracy), and Bell and Everett (Constitutional union). In the election following all these nominations, the free states were carried by the republicans and Mr. Lincoln received a larger popular vote than that cast for James Buchanan, four years before. When the result was determined, several federal officers in South Carolina resigned their positions, and the people of that state prepared to secede from the union. President Buchanan, by his message, December 4, virtually recognized the right of secession, and one after another various southern states seceded from the union, beginning with South Carolina, December 20, 1860, and ending with the secession of Tennessee, which was effected June 8, 1861. Mr. Lincoln was inaugurated as president 4th March, 1861, when the war for the union was commenced and pushed to a successful termination. From 1861 to 1885 the republican party was in possession of the presidential office: again 1889–'93 and 1897. Democrats, 1885–'88 and 1893–'96. See Dem. party and Wide-awakes.

Repudiationist. One who favors or advocates repudiation of debts.

The south was never at any time more fully represented at Washington by a fanatical and lunatic pro-slavery set than is the vest at present by a fanatical and lunatic set of silver-money repudiationists.—New York Herald, about December, 1877.

Returning Board. A number of men whose duty is that of canvassing the votes cast at an election, and making known the result. Certain southern states.

Richmond. Capital of Virginia, and during the slavery war of 1861-5 was the seat of government in the Southern confederacy. The capture of Petersburg and Richmond by the national troops under Grant, was effected 2d and 3d April, 1865. For surrender of Lee and Johnston, etc., see under the head of Slavery War.

Ring. A set of operators for self-interest or self-aggrandizement, whose acts are detrimental to the public. This sort of ring was aptly illustrated in a book by the use of a cut showing the ring men of New York standing in a circular line, boss Tweed being prominent, each one pointing at the one next to him. The picture was labelled, "T'was him."

Rooster, Democratic. Bird B. Chapman, a politician of repute in Indiana, about 1844, published a democratic paper, and on the occasion of a victory at some local election, was felicitated by an active democrat, who wrote, "Crow, Chapman, crow." These words were used as a headline in his next day's edition, and so the democratic rooster was first introduced as the harbinger of victory.

Salt River. An imaginary river, up which defeated political candidates are supposed to be sent. The phrase "to row up salt river" had its origin from Salt river, or Salt creek, a small, winding stream in the state of Kentucky. Owing to the many bars and shallows by which it is characterized, it is difficult to row up the stream. The defeated individual is rowed up Salt river.

Scratch. To scratch the name of a candidate, so that it will not appear on the ticket. A scratched ticket is one with the name of a candidate erased. A "badly scratched ticket" is one with the names of several candidates erased. See Ticket.

Secessionists. Those of the party in the south in favor of withdrawing from the federal union. The term secesh was commonly applied to secessionists. "Secessia," the confederate states.

Sectionalism. A feeling of special interest in one section rather than in the whole country.

Senate. The higher branch of the congress of the United States. It is composed of two senators from each state of the federation, chosen for a term of six years. The presiding officer is the vice-president of the United States. "House," the lower branch of the congress of the United States; it is composed of members chosen every second year by the people of the several states.

Shinplaster. A bank note or any paper money that is of low denomination or depreciated in value.

Silver Dollar. See Trade Dollar.

Silver Party. At the Presidential Convention, held by the Democratic party at Chicago, July 7-10, 1896, a platform was adopted by a two-third majority, the main plank of which was "the free coinage of silver at a ratio of 16 to 1, meaning that the U. S. mints would have to coin into dollars any silver bullion brought them, each dollar to contain 371.25 grains of pure silver." This plank caused the rupture of the party, the dissenters organizing the Gold Democratic party. Both sections were beaten at the polls November 4, 1896.

Slate. A term applied to an imaginary slate, upon which is written the names of candidates for office. Those who expect to become candidates strive to get their names on the slate, which is about equivalent to getting the nomination.

Slave Code. A digest of laws relating to slaves and the slave system.

Slavery War, or Rebellion. The war on account of slavery in the United States, was begun by the confederates, under Beauregard, who opened with thirty heavy guns and mortars upon Fort Sumter, in the harbor of Charleston, S. C., 12 April, 1861. During four years, the losses were, killed in battle, 61,362; died of wounds, 34,727; died of disease, 183,287; total died, 279,376; total deserted, 199,105. Confederate soldiers who died of wounds or disease, 133,821; deserted, 104,428—partial figures. Total confederate and union dead, 413,197. Estimated cost of the war, $3,000,000,000. Expenditures arising from the war were, on June 10, 1880, as reported by Secretary Sherman, $6,189,929,908.58. Confederate forces under General Lee surrendered to General Grant, April 9, 1865. President Lincoln was assassinated at Washington, April 14. General Johnston's confederate army surrendered to General Sherman on the 26th, and early in May, 1865, the war ended.

Slave Trade and Slavery. (Suppression and abolition in the British empire)—The occupation of procuring and selling persons who are at the disposal of others. The Portuguese began to transport negroes from their possessions in Africa to Spanish America in 1501. In 1517 the emperor, Charles V, legalized the slave trade, and it was permitted by the French under Louis XIII, and the English under Queen Elizabeth. The first Englishman to engage in the traffic was Sir John Hawkins, and between the years 1680 and 1700, the English traders exported 300,000 slaves from Africa, and from the year last named up to 1786, sent 610,000 to Jamaica, the principal of the British West India islands. The most important markets for slaves in Africa were Bonny and Calabar, on the coast of Guinea. Here the slaves who came from the interior were exchanged for rum, brandy, toys, iron, salt, etc., and the number of those beings who have been thus torn from their country during three centuries is calculated to amount to upward of forty millions. Almost from the very time that this traffic was established, there were persons who more or less powerfully declared against it; but the honor of having systematically and successfully taken up the cause of the slaves belongs to the Quakers, and the movement began more particularly about 1727. In 1751 the Quakers entirely abolished it among themselves, and in 1772 Granville Sharp obtained a decision of the English judges, in the famous case of the negro Somerset, that a slave, as soon as he set his foot upon English ground should become free. In 1783 a petition for the abolition of the slave trade was addressed to parliament by the Quakers, and in 1787 a society for its suppression was established in London. In 1788 an order was obtained for a committee of the privy council to inquire into it. May 12, 1789, Wilberforce made his first speech in the house on the subject, supported by Burke, Fox, Granville, and Pitt. Various subsequent attempts were made without success, and the object was not effected until March 25, 1807, when a bill that had passed both houses received the royal assent. By the terms of an act passed, 28 August, 1833, slavery was to cease throughout the British empire on the first of August, 1834, and at that time nearly 800,000 negroes became nominally free. They were to be wholly free after a few years' apprenticeship under their former owners. See Abolitionists, etc.

Socialists. Those who accept the principles of socialism as taught by Robert Owen, who proposed to reorganize society by banishing old motives of action, including religion in any of its special forms, and to establish the social edifice on the basis of co-operation and mutual usefulness. As summed up by Horace Greeley, the three projects for social reform are—

Owen.—Place human beings in proper relations, under favoring circumstances (among which I include education and intelligence), and they will do right rather than wrong. Hitherto, the heritage of the great majority has been filth, squalor, famine, ignorance, superstition; and these have impelled many to indolence and vice, if not to crime. Make their external conditions what they should be, and these will give place to industry, sobriety, and virtue.

St. Simon.—"Love is the fulfilling of the law." Secure to every one opportunity; let each do whatever he can do best; and the highest good of the whole will be achieved and perpetuated.

Fourier.—Society, as we find it, is organized rapacity. Half of its force is spent in repressing or resisting the jealousies and rogueries of its members. We need to organize universal justice based on science. The true Eden lies before, not behind us. We may so provide that labor, now repulsive, shall be attractive; while its efficiency in production shall be increased by the improvement in machinery and the extended use of natural forces, so as to secure abundance, education, and elegant luxury to all. What is needed is to provide all with homes, employment, instruction, good living, the most effective implements, machinery, etc., securing to each the fair and full recompense of his achievement; and this can best be attained through the association of some four to five hundred families in a common household, and in the ownership and cultivation of a common domain, say of 2,000 acres, or about one acre to each person living thereon.

Soft Money. A term applied to paper money, especially the greenbacks. For Hard Money, see Hard Pan.

Soft-shell Democrats. That portion of the democratic party in New York, which favored union and harmony, and opposed the election of General Lewis Cass, in 1848. The "softs" supported Van Buren for president, as also did the Barnburners, which see. The hard-shell democrats supported Cass, favored the execution of the fugitive slave act, and were for dividing the offices among the pro-slavery hunkers. See Hunkers.

Solid. A term applied to a political party, whose members vote as a unit for its regular nominees and principles; also, the various localities or sections where votes are cast.

Four years ago the south was solid for free trade. . . . There are more democratic protectionists in the south than in any other section of the country, except Pennsylvania, and on this issue the party will split.—Chicago Inter Ocean, June 3, 1882.

Sons of Liberty. The name assumed by those colonists who, in 1765, united in opposition to the odious stamp act, and other unlawful measures of Great Britain.

Sorehead. A politician who is dissatisfied with certain acts of his party, and disposed to complain.

He was what the virtuous politicians of the present day would call a sorehead; a sorehead

being a person with some ideas of his own, and a man not signed, sealed, and delivered up in fee simple to party.—Ingersoll's Life of Greeley.

South. A term applied to the states lying south of Mason and Dixon's line, in which slavery existed. See North.

South Sea Bubble. Law's Mississippi scheme begat, in England, a company for trading to the south seas, and a similar mania seized on the English nation. There were 20,000 shares of £100 each, and they rose, in a few weeks, to fifty and 100 times their value, but the secretary absconding with a large proportion of the capital, and it being discovered that fraudulent shares were issued, they fell in price as rapidly as they rose, and thousands were left in destitution. The temporary success of the South sea bubble gave rise to so many schemes and companies that the year 1722 is generally called the bubble year. See Mississippi Scheme.

Sovereign. A citizen of the United States.

Split. To divide or split in two.

An effort was made to force a pro-slavery constitution upon the territory (Kansas), and it split the democratic party into two wings.—History of the United States.

Split Ticket. See Ticket.

Spoils. The pay, honors, and emoluments of official position.

To the victors belong the spoils of the enemy.—William L. Marcy, 1837.

While denouncing the "infamous spoils system," this postmaster (Major Merrick, Penn.) holds tight to one bundle of spoils until he gets ready to reach out for another and larger bundle of spoils.—New York Sun, June 5, 1882.

Spread Eagle. The figure of an eagle, usually with shield showing stripes and stars, arrows, olive branch, and sometimes horn of plenty; the national emblem of the United States, an eagle with extended wings.

Squatter Sovereignty. See Popular Sovereignty.

Stalwarts. A term used to distinguish those of the republican party who were unfriendly to the administration of Garfield; followers of Conkling. Opposed to Halfbreeds, which see.

The two factions in New York, that may be called for convenience the Garfield and the Conkling republicans, hate each other with an intensity that characterizes all quarrels of the kind, and they declared war to the knife, and the knife to the hilt.—Chicago Journal, Nov. 9, 1882.

Stamp Act. An act by which a direct tax was imposed upon the colonies by Great Britain in 1765. It was proposed that the expenses incurred in defending American possessions during the French and Indian war (1755–1763) should be offset by taxation, hence the stamp act. The vigorous opposition of the colonists caused the stamp act to be repealed the next year. Another attempt to tax the colonists was made in 1767, but it came to naught before the wrath of the people, who were determined to uphold the principle of "no taxation without representation."

Stars and Stripes. The national ensign of the United States. It was adopted by act of congress, 14 June, 1777, in the following words:

Resolved, That the flag of the thirteen United colonies be thirteen stripes alternately red and white; that the union be thirteen stars, white in a blue field, representing a new constellation.

Star-spangled Banner. The national flag was first so-called by Francis S. Key, in his beautiful song of that name:

Oh! say, can you see, by the dawn's early light,
What so proudly we hail'd at the twilight's last gleaming.
Whose broad stripes and bright stars, through the perilous fight,
O'er the ramparts we watch'd were so gallantly streaming?
And the rocket's red glare, the bombs bursting in air,
Gave proof through the night that our flag was still there;
Oh! say, does that star-spangled banner yet wave
O'er the land of the free and the home of the brave?

States. See Nicknames of States, Cities, and People. See, also, Origin of the Names of States.

State Rights. The rights of the several states as opposed to the federal government; the judgment of a state as opposed to the two houses of congress, the president, and the supreme court of the United States. The origin of the famous resolutions of 1798, introduced in congress by James Madison, is attributed to Thomas Jefferson. The south was the home of the state rights party when John Adams became president in 1797. Kentucky adopted (1798) the state rights manifesto which Jefferson was privately solicited to draft, and by which that state proclaimed her opposition to federal rule. Resolutions in favor of nullification were afterward drafted by Madison and introduced in the legislature of Virginia. John C. Calhoun was regarded as prime author of state rights. See Nullification.

Straight. Unmixed; as a straight ticket, a straight republican. "Straight-out," genuine; true; as, a straight-out democrat, or, straight-out greenbacker. See Ticket.

Stump. The upright part of a tree remaining in the ground after the tree is cut down. In former times, this was used as a stand for speakers. To take the stump and go on an electioneering tour, is the occupation of some candidates during a political campaign.

Stump-tail. See Red Dog.

Surprise Candidate. A political candidate suddenly put up by wire-pullers.

Swamp Angel. A 200-pounder Parrott gun that was planted in a marsh between Morris and James' islands, within five miles of Charleston, S. C., under command of General Gilmore, August, 1863. Shells were thrown into the city. As a result of the operations, Fort Wagner was evacuated by the confederates and occupied by the national troops 7th Sept., 1863. Charleston was finally evacuated, and occupied by General Sherman's troops, 18 February, 1865.

Swinging Around the Circle. An expression used by President Johnson, who laid the corner stone of the Douglas monument, at Chicago, 6th Sept., 1866. He took advantage of his tour to make many speeches through the country, and the above expression was used in an epithetical sense by those who disapproved of his course.

Tammany Society. An organization started in New York, 12 May, 1789, for charitable purposes, by William Mooney, an Irishman, who was prime mover. The name is derived from an Indian chief of great age and virtue, who was patron saint. This society was modeled after the Jacobin club of Paris. In later years it was absorbed by the democratic party, or became one wing of that party, and from the association of such men as William M. Tweed, the late New York boss, received a bad name; but since the breaking up of the Tammany ring, 28 October, 1871, the Tammany democracy seem to have flourished.

Territory. A great district of country, owned by the United States. It is distinguished from a state in that it is organized with a separate legislature, placed under a territorial governor and other officers appointed by the president and senate of the United States.

Ticket. The form of names printed on a slip of paper, and used as a ballot at an election. "Regular," or "Straight," ticket, a list of candidates as named by an assemblage of delegates from a body of constituents. "Clean ticket," same as regular or straight ticket. "Split ticket," one that is formed to meet the requirements of the different divisions of a political party; as, the two wings. (See Scratch.) "Mixed ticket," one in which is combined the elements of different parties.

Have they forgotten the Greeley disaster? A mixed ticket this year would repel democrats on the one side and republicans on the other, and neither side could poll its full vote for it.—New York Sun, May 20, 1882.

Tippecanoe and Tyler Too. See Hard Cider and Log Cabin Campaign.

Tory. A term which for two centuries, has served to designate one of two principal political parties in England, and was used during the war of the revolution by the whigs or patriots as against those who supported the crown. The first definition given by Dr. Johnson is: "A cant term, derived, I suppose, from an Irish word, signifying savage." Respecting the principles of a tory, the lexicographer adds: "One who adheres to the ancient constitution of the state, and the apostolical hierarchy of the church of England."

Trade Dollar. A silver dollar of 420 grains Troy, that was coined by act of congress, 12 January, 1873, in consequence of a demand on the Pacific coast for a coin to be used in commercial transactions with several of the Asiatic nations, specially Japan and China. This coin came to be quite extensively circulated in the various states of the union. Previous to the coinage of the trade dollar the old silver dollar of 371¼ grains was the only silver dollar known, but its coinage was discontinued by the act of 1873. By subsequent legislation, the trade dollar coins were retired; the coinage is limited, and the dollar is no longer legal tender as between inhabitants of the United States.

Treason. A betraying, treachery, or breach of faith. In the United States, the actual levying of war against the union, and giving aid and comfort to its enemies. Jefferson Davis, on trial for treason, in 1867, at Richmond, was discharged on account of a *nolle prosequi*, *i. e.*, the government being unwilling to proceed further in the prosecution of its suit. See Confederate States.

Uncle Sam. The popular title for the United States. In the year 1812, a large quantity of provisions for the army was purchased at Troy, New York, by Elbert Anderson, a government contractor. The goods were inspected by two brothers, Ebenezer and Samuel Wilson. The last-named was invariably known among the workmen as Uncle Sam. The packages were marked E. A.—U S. On being asked the meaning of these initials, a workman jokingly replied that he did not know unless they meant Elbert Anderson and Uncle Sam. So the title became current among workmen, soldiers and people, and the United States government is known now by those who affectionately call it Uncle Sam. See also Brother Jonathan.

Underground Railroad. See Abolition of Slavery.

Union. The political connection between the states of North America. The United States.

Unionists. See Constitutional Union Party.

Upper House. A senate. The term is used in some states, where the legislative branches of government are called upper and lower; as, upper house, lower house. Said also of the two houses of congress.

Vigilance Committee. An organized body of citizens who, being satisfied of the apathy and lack of backbone on the part of local authorities, proceed to regulate matters in the community; especially to punish criminals.

Walk Over. Politically, an easy victory. Opposed to forlorn hope.

West. The states of the union lying west of Pennsylvania, Virginia, and North Carolina.

The unreasonable domination of the west is no more to be submitted to than was the unreasonable domination of the south.—New York Herald, Nov. 15, 1877.

Western Reserve. See Connecticut Reserve.

Whig Party. A political party which may be said to have had its inception, together with the democratic party, in 1828, when public sentiment became divided upon the tariff question. The first whig national convention met at Pittsburgh, in December, 1839, when Harrison and Tyler became candidates for president and vice-president. (See Hard Cider and Log Cabin Campaign.) This later whig party, as distinct from the American whigs (which see), formed the conservative party of the country, and Henry Clay, who was its nominee for president in 1844, had been, as Mr. Greeley said, a champion of internal improvements, protection of home industry, a sound and uniform national

currency. The abolitionists, who had again nominated Mr. Birney for president, gave a largely increased vote for their candidate, and this resulted in the defeat of Henry Clay. In 1848 the whigs nominated and elected General Zachary Taylor for president and Millard Fillmore for vice-president. Had the free democrats and barnburners voted for Lewis Cass, the straight democrat, he would have been elected. In 1852, General Winfield Scott was the unsuccessful candidate as opposed to Franklin Pierce, who was elected. In the campaign of 1856, the remnant of the whig party and the American party united and cast 874,534 votes for Fillmore and Donelson, as against the republicans with Fremont and the democrats, who succeeded with James Buchanan. Then the whig party passed away.

White League. An organization of armed men in New Orleans, in 1874, whose ostensible object was that of putting down the negroes who were reported as on the point of an uprising. The league sent for arms, which arrived on a steamer, but the city authorities, having fears for the well-being of the state government, refused to allow the league to take possession of them. This provoked the league to riotous action, which, on the 14th September, resulted in the death of more than a hundred persons.

White Liner. A pro-slavery party in Louisiana.

Wide Awakes. A name applied to the political organization which had for its object the election of Abraham Lincoln to the presidency The wide awakes were equipped with swinging torches and black caps and capes. The order originated in Hartford, Connecticut, and the membership reached upward of half a million. The first wide-awake club was formed in that city 3d March, 1859.

Wild Cat. The bank notes of an institution in the state of Michigan, having on their face a representation of a panther. When this bank failed the disgusted holders of its bills applied the epithet of wild cat to the panther money. Hence the terms, wild-cat money, wild cat banking institutions, etc. See Red Dog.

Wilmot Proviso. A measure proposed in congress, August, 1846, by David Wilmot, a representative from Pennsylvania. The proviso was offered as an addition to a bill then before the house, appropriating money for peace negotiations with Mexico. It provided that "as an express and fundamental condition to the acquisition of any territory from the republic of Mexico by the United States, by virtue of any treaty which may be negotiated between them, and to the use by the executive of the moneys herein appropriated, neither slavery nor involuntary servitude shall ever exist in any part of said territory, except for crime, whereof the party shall be first duly convicted." The proviso was adopted and readopted by the house, but rejected by the senate. See Free Soil Party.

Wire Pullers. Those who plot and scheme in order to have potent influence in the region of politics.

. . . Already that city (Philadelphia) is filled with wire-pullers, public opinion manufacturers embryo cabinet officers, future ambassadors, and the whole brood of political make-shifts, who contrive to live out of the public purse by arousing public credulity.—New York Mirror, June 5, 1848.

Woman's Rights. An issue, raised by earnest and now celebrated women, who have been seconded by men, in favor of woman's equality before the law, the right of woman to be a voter and citizen the same as those of the opposite sex. First woman's rights convention was called, 19 July, 1848, at Seneca Falls, New York; the names appended to the call were Lucretia Mott, Elizabeth Cady Stanton, Martha C. Wright, and Mary Ann McClintock. The states of Massachusetts and Kansas allow women to vote for any school officers, and the territory of Wyoming for any state or county officer.

Mr. President, I can make the speech our friend required in just one minute. I hold it the right of every woman to do any and everything that she can do well, provided it ought to be done. If it ought not to be done at all, or if she cannot do it, then she has no right to do it; but if it ought to be done, and she can do it, then her right to do it is, to my mind, indisputable. And that is all that I have to say, now or ever, on the subject of woman's rights.—Horace Greeley, at Salt Lake, July, 1859.

Wooly Heads. Those of the whig party, so-called to distinguish them from the more conservative element. The wooly heads became separated from the conservatives about the year 1850. The latter were called Silver Grays, which see.

Yankee, and Yankee Doodle. Said to be a corruption of the word English, pronounced by the Indians Yengeese, and is now the popular name for the New Englanders. Yankee Doodle is the name given to the national air of the United States. It originated in 1755, when the British colonies in America contributed their several quotas of men to aid the British army in reducing the French power in Canada. Their rawness and awkwardness became the sport of the British army, and an English physician named Shackburg composed a tune, and recommended it, by way of joke to the Americans, and it immediately became celebrated.

Yankeedom. An epithet applied at the south to the north, especially during the war of 1861-5.

ADMINISTRATIONS OF THE UNITED STATES GOVERNMENT.

1. **George Washington** (Federalist). Born at Westmoreland, Va., 22 February, 1732. Ordinary school training. President two terms, 1789-1797. Died 14 December, 1799. John Adams, vice-president. See Father of his Country.
2. **John Adams** (Federalist). Born at Braintree, Mass., 30 Oct., 1735. First ambassador (1785) from United States to Great Britain. President one term, 1797-1801. Died 4th July, 1826. Thomas Jefferson, vice-president.
3. **Thomas Jefferson** (Democratic-Republican). Born at Shadwell, Va., 2d April, 1743. Educated at William and Mary college, Williamsburg; Continental congress; Gov. of Virginia 1779-'81; M. C., 1783; min. to France. Author of "Notes on Virginia." President two terms, 1801-9. Died 4th July, 1826. Aaron Burr and George Clinton, vice-presidents.
4. **James Madison** (Democratic-Republican). Born at King George, Va., 16 March, 1751. Graduated from Princeton college. President two terms, 1809-'17. Died 28 June, 1836. George Clinton and E. Gerry, vice-presidents.
5. **James Monroe** (Democratic-Republican). Born in Westmoreland county, Va., 28 April, 1758. William and Mary college (Va). Member legislature, U. S. senator, min. to France, gov. in 1798. President two terms, 1817-'25. D. N. Y., 4th July, 1831. D. D. Tompkins, vice-president.
6. **John Quincy Adams** (National Republican). Born at Braintree, Mass., 11 July, 1767. Harvard College. Ambassador to Berlin, Cong. of Vienna, and court of St. James. President one term, 1825-9. Died at Washington, 23 Feb., 1848. John C. Calhoun, vice-president.
7. **Andrew Jackson** (New Democratic party). Born in Mecklenburg county, N. C., 15 March, 1767. U. S. senator in 1797, then general of state troops; in 1814 major-general U. S. service; in 1821 governor of Florida; in 1823 again senator. President two terms, 1829-'37. Died near Nashville, 8th June, 1845. John C. Calhoun and Martin Van Buren, vice-presidents.
8. **Martin Van Buren** (Democrat). Born at Kinderhook, N. Y., 5th Dec., 1782. Rudimentary training; studied law, State senator N. Y. in 1812; U. S. senator; Governor. President one term, 1837-'41. Died at Kinderhook, 24 July, 1862. R. M. Johnson, vice-president.
9. **William Henry Harrison** (Whig). Born at Berkeley, Va., 9th Feb., 1773. Fought Indians in N. W. Ter.; M. C.; Gov. Ter. Ind., 1801-'13; Maj.-Gen. U. S. A.; M. C. from Cincinnati, and in 1824 senator. President one month. Died 4th April, 1841. John Tyler, vice-president.
10. **John Tyler** (Democrat). Born in Charles City county, Va., 29 March, 1790. Member of legislature; M. C. and Gov.; U. S. senate; mem. Confed. cong. President three years and eleven months, 1841-5. Died at Richmond, 17 Jan., 1862. Samuel L. Southard, W. P. Mangum, vice-presidents.
11. **James Knox Polk** (Democrat). B. in Mecklenburg county, N. C., 2d Nov., 1795. University of N. C. Tenn. legislature; M. C. 14 years; Gov. Tenn. President one term, 1845-'49. D. at Nashville, 15 June, 1849. G. M. Dallas, vice-president.
12. **Zachary Taylor** (Whig). B. Orange county, Va., 24 Sept., 1784. Lieut., major, lieut.-col., and afterward general. President one year and four months. D. 9th July, 1850. Millard Fillmore, vice-president.
13. **Millard Fillmore** (Whig). B. at Summerhill, N. Y., 7th Jan., 1800. Limited education, N. Y legislature; M. C. four terms. President two years, eight months, 1849-'53. D. 8th March, 1874.
14. **Franklin Pierce** (Democrat). B. at Hillsborough, N. H., 23 Nov., 1804. Bowdoin college. Mem. legislature, N. H.; M. C. twice; U. S. senator, 1837; col., then brig.-gen. President one term. D. at Concord, N. H., 8th Oct., 1869.
15. **James Buchanan** (Democrat). B. at Stony Batter, Penn., 22 April, 1791. Dickinson college, Carlisle, Penn. Minister to St. Petersburg, to 1833; M. C.; ambassador to England, 1853 till 1856. President one term, 1857-'61. D. at Lancaster, Penn., 1st June, 1868. John C. Breckinridge, vice-president.
16. **Abraham Lincoln** (Broad Republican). B. in Hardin county, Ky., 12 Feb., 1809. Self-educated. Member Illinois legislature, 1834. Hero of American republicanism. President one term and one month. D. at Washington, 15 April, 1865. Hannibal Hamlin and Andrew Johnson, vice-presidents.
17. **Andrew Johnson** (Democrat). B. at Raleigh, N. C., 29 Dec., 1808. Self-educated. Alderman in Greenville, and mayor; Tenn. legislature; M. C. 1843; Gov.; senator; mil. gov. Tenn. President three years and eleven months, 1865-'69. D. at Greenville, Tenn., 31 July, 1875. LaFayette Foster and Benj. F. Wade, vice-presidents.
18. **Ulysses S. Grant** (Republican). B. at Point Pleasant, Ohio, 27 April, 1822. West Point; 2d Lt. 4th Inf.; Capt.; Adj.-Gen. Ill.; Col. 21st Ill.; Brig.-Gen.; Lieut.-General; General. President two terms, 1869-'77. Schuyler Colfax and Henry Wilson, vice-presidents.
19. **Rutherford B. Hayes** (Republican). B. in Ohio, 4th Oct., 1822. Kenyon College, Cambridge Law School, 1845. Major 23d O. Vols. in W. V.; Brig.-Gen.; M. C.; Gov. Ohio. President one term, 1877-'81. Wm. A. Wheeler, vice-president.
20. **James A. Garfield** (Republican). B. Orange, Cuyahoga county, Ohio, 19 Nov., 1831. Geauga (Ohio) Acad., and Williams's college, Mass; Col. 42d O. Regt.; Brig.-Gen.; Maj.-Gen.; M. C.; U. S. senator. President six months and fifteen days. D. at Elberon (Long Branch) N. J., 19 Sept., 1881. Chester A. Arthur, vice-president.
21. **Chester A. Arthur** (Republican). B. at Fairfield, Vt., 5th Oct., 1830. Educated at Union, Vt.; admitted to the bar in N. Y.; quartermaster-general state N. Y.; coll. port of N. Y., 1871-8.

22. GROVER CLEVELAND (Democrat). Former occupation, lawyer, sheriff, mayor and governor. Carried New York when elected governor by the phenominal majority of over 190,000 votes. THOMAS A. HENDRICKS, of Indiana, vice-president.

23. BENJAMIN HARRISON (Republican). Former occupation, lawyer, general in U. S. army, and United States senator. Had 479,304 popular votes less than his opponents, yet had a majority of 65 in the electoral college. LEVI P. MORTON, of New York, vice-president.

24. GROVER CLEVELAND. ADLAI STEVENSON, of Illinois, vice-president.

25. WM. MCKINLEY (Republican), of Ohio, lawyer. GARRETT A. HOBART, of Maine, vice-president.

POLITICAL INFORMATION.

RESULT OF THE ELECTORAL COLLEGE PROCEEDINGS BY STATES FROM 1789 TO AND INCLUDING 1889.

1789, Washington and Adams—Washington had the vote of all the States, viz., New Hampshire, Massachusetts, Connecticut, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, South Carolina and Georgia.

Adams had all of New Hampshire, Massachusetts, 5 of the 7 of Connecticut, 1 of the 6 of New Jersey, 8 of the 10 of Pennsylvania, 5 of the 10 of Virginia; total 34.

1793, Washington and Adams—Washington had the votes of all the States, viz., New Hampshire, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, Kentucky, North Carolina, South Carolina and Georgia; total 132.

Adams carried all these States with the exception of New York, Virginia, Kentucky, North Carolina and Georgia; total 77 votes.

1797, Adams and Jefferson—Adams had the votes of New Hampshire, Massachusetts, Rhode Island, Connecticut, Vermont, New York, New Jersey, Delaware, 1 of the 15 of Pennsylvania, 1 of the 20 of Virginia, 1 of the 12 of North Carolina, and 7 of the 11 of Maryland; total 71.

Thomas Jefferson had 14 of the 15 votes of Pennsylvania, 4 of the 11 of Maryland, 20 of the 21 of Virginia, Kentucky, 11 of the 12 of North Carolina, Tennessee, Georgia and South Carolina; total 68.

1801, Jefferson and Burr—Had the votes of the States of New York, 8 of the 15 of Pennsylvania, 5 of the 10 of Maryland, Virginia, Kentucky, 8 of the 12 of North Carolina, Tennessee, South Carolina and Georgia; total 73. House decided Jefferson President and Burr Vice-President.

Adams and Pinckney—Had the votes of the States of New Hampshire, Massachusetts, Rhode Island, Connecticut, Vermont, New Jersey, 7 of the 15 of Pennsylvania, Delaware, 5 of the 10 of Maryland, and 4 of the 12 of North Carolina; total 65.

1805, Jefferson and Clinton—Had the votes of the States of New Hampshire, Massachusetts, Rhode Island, Vermont, New York, New Jersey, Pennsylvania, Maryland, Virginia, North Carolina, South Carolina, Georgia, Tennessee, Kentucky and Ohio; total 162.

Pinckney and King—Had the votes of the States of Connecticut, Delaware and 2 of the 11 of Maryland; total 14.

1809, Madison and Clinton—Had the votes of the States of Vermont, New York, New Jersey, Pennsylvania, 9 of the 11 of Maryland, Virginia, 11 of the 14 of North Carolina, South Carolina, Georgia, Kentucky, Tennessee and Ohio; total 122.

Pinckney and King—Had the votes of the States of New York, Massachusetts, Rhode Island, Connecticut, Delaware, 2 of the 11 of Maryland, and 3 of the 14 of North Carolina; total 47.

1813, Madison and Gerry—Carried Vermont, Pennsylvania, 6 of the 11 of Maryland, Virginia, North Carolina, South Carolina, Georgia, Kentucky, Tennessee, Ohio and Louisiana; total 128.

Clinton and Ingersoll—Had the votes of the States of New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware and 5 of the 11 of Maryland; total 89.

1817, Monroe and Tompkins—Had the votes of the States of New Hampshire, Rhode Island, Vermont, New York, New Jersey, Pennsylvania, Maryland, Virginia, North Carolina, South Carolina, Georgia, Kentucky, Tennessee, Ohio, Louisiana and Indiana; total 183.

King and Howard—Had the votes of the States of Massachusetts, Connecticut and Delaware; total 34.

1821, Monroe and Tompkins—Had the votes of every State in the Union; total 231.

Adams and Stockton—Adams had 1 vote of the 8 of New Hampshire, and Stockton 8 of the 15 of Massachusetts.

1825, Adams and Calhoun—Had the votes of the States of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, Vermont, 26 of the 36 of New York, 1 of the 3 of Delaware, 3 of the 11 of Maryland, 2 of the 5 of Louisiana, and 1 of the 3 of Illinois; total 84 for Adams. Calhoun for Vice-President carried several States that Adams did not carry, and had a total of 182 votes.

Crawford—Had 5 of the 36 votes of New York, 2 of the 3 of Delaware, and 1 of the 11 of Maryland, Virginia and Georgia; total 41.

Jackson—Had 1 of the 36 votes of New York, New Jersey, Pennsylvania, 7 of the 11 of Maryland, North Carolina, South Carolina, Tennessee, 3 of the 5 of Louisiana, Mississippi, Indiana, Illinois and Alabama; total 99.

Clay—Had 4 of the 36 votes of New York, Kentucky, Ohio and Missouri; total 37.

No choice by the electoral college, it devolving upon the House of Representatives. A choice was reached on first ballot as follows: Adams—Connecticut, Illinois, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Missouri, New Hampshire, New York, Ohio, Rhode Island and Vermont; 13 States. Jackson—Alabama, Indiana, Missouri, New Jersey, Pennsylvania, South Carolina and Tennessee; 7 States. Crawford—Delaware, Georgia, North Carolina and Virginia; 4 States.

1829, Jackson and Calhoun—Had 1 of the votes of the 9 of Maine, 20 of the 36 of New York, Pennsylvania, 5 of the 11 of Maryland, Virginia, North Carolina, South Carolina, Georgia, Kentucky, Tennessee, Ohio, Indiana, Mississippi, Illinois, Alabama and Missouri; total 178.

Adams and Rush—Had 8 of the 9 votes of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, Vermont, 16 of the 36 of New York, New Jersey, Delaware, and 6 of the 11 of Maryland; total 83.

1833, Jackson and Van Buren—Had the votes of Maine, New Hampshire, New York, New Jersey, Pennsylvania, 3 of the 8 of Maryland, Virginia, North Carolina, Georgia, Tennessee, Ohio, Louisiana, Mississippi, Indiana, Illinois, Alabama and Missouri; total 219.

Clay and Sergeant—Had the votes of the states of Massachusetts, Rhode Island, Connecticut, Delaware, 5 of the 8 of Maryland and Kentucky; total, 49.

1837, Van Buren and Johnson—Had the votes of the states of Maine, New Hampshire, Rhode Island, Connecticut, New York, Pennsylvania, Virginia, North Carolina, Louisiana, Mississippi, Illinois, Alabama, Missouri, Arkansas and Michigan; total, 170.

Harrison and Granger—Had the votes of the states of Vermont, New Jersey, Delaware, Maryland, Kentucky, Ohio and Indiana; total, 73.

1841, Harrison and Tyler—Had the votes of the states of Maine, Massachusetts, Rhode Island, Connecticut, Ver-

mont, New York, New Jersey, Pennsylvania, Delaware, Maryland, North Carolina, Georgia, Kentucky, Tennessee, Ohio, Louisiana, Mississippi, Indiana and Michigan; total, 234.

Van Buren—Had the votes of the states of New Hampshire, Virginia, South Carolina, Illinois, Alabama, Missouri and Arkansas; total, 60.

1845, Polk and Dallas—Had the votes of the states of Maine, New Hampshire, New York, Pennsylvania, Virginia, South Carolina, Georgia, Louisiana, Mississippi, Indiana, Illinois, Alabama, Missouri, Arkansas and Michigan; total, 170.

Clay and Frelinghuysen—Had the votes of the states of Rhode Island, Connecticut, Vermont, New Jersey, Delaware, Maryland, North Carolina, Kentucky, Tennessee and Ohio; total, 105.

1849, Taylor and Fillmore—Had the votes of the States of Massachusetts, Rhode Island, Connecticut, Vermont, New York, New Jersey, Pennsylvania, Delaware, Maryland, North Carolina, Georgia, Kentucky, Tennessee, Louisiana and Florida; total, 163.

Cass and Butler—Had the votes of the States of Maine, New Hampshire, Virginia, South Carolina, Ohio, Mississippi, Indiana, Illinois, Alabama, Missouri, Arkansas, Michigan, Texas, Iowa and Wisconsin; total, 127.

1853, Pierce and King—Had the votes of the States of Maine, New Hampshire, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Ohio, Louisiana, Mississippi, Indiana, Illinois, Alabama, Missouri, Arkansas, Michigan, Florida, Texas, Iowa, Wisconsin and California; total, 254.

Scott and Graham—Had the votes of the States of Massachusetts, Vermont, Kentucky and Tennessee; total, 42.

1857, Buchanan and Breckinridge—Had the votes of the States of New Jersey, Pennsylvania, Delaware, Virginia, North Carolina, South Carolina, Georgia, Kentucky, Tennessee, Louisiana, Mississippi, Indiana, Illinois, Alabama, Missouri, Arkansas, Florida, Texas and California; total, 174.

Fremont and Dayton—Had the votes of the States of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, Vermont, New York, Ohio, Michigan, Iowa and Wisconsin; total, 114.

Fillmore and Donelson—Had the votes of the State of Maryland; total, 8.

1861, Lincoln and Hamlin—Had the votes of the States of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, Vermont, New York, 4 of the 7 of New Jersey, Pennsylvania, Ohio, Indiana, Illinois, Michigan, Iowa, Wisconsin, California, Minnesota and Oregon; total, 180.

Breckinridge and Lane—Had the votes of the States of Delaware, Maryland, North Carolina, South Carolina, Georgia, Louisiana, Mississippi, Alabama, Arkansas, Florida and Texas; total, 72.

Douglas and Johnson—Had the votes of the States of Missouri, and 3 of the 7 of New Jersey; total, 12.

Bell and Everett—Had the votes of the States of Virginia, Kentucky and Tennessee; total, 39.

1865, Lincoln and Johnson—Had the votes of the States of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, Vermont, New York, Pennsylvania, Maryland, Ohio, Indiana, Illinois, Missouri, Michigan, Wisconsin, Iowa, California, Minnesota, Oregon, Kansas, West Virginia and Nebraska; total, 212.

McClellan and Pendleton—Had the votes of the States of New Jersey, Delaware and Kentucky; total, 21.

Eleven States did not vote, viz.: Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas and Virginia.

1869, Grant and Colfax—Had the votes of the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, Pennsylvania, North Carolina, South Carolina, Alabama, Ohio, Tennessee, Indiana, Illinois, Missouri, Arkansas, Michigan, Florida, Iowa, Wisconsin, California, Minnesota, Kansas, West Virginia, Nevada and Nebraska; total, 214.

Seymour and Blair—Had the votes of the States of New York, New Jersey, Delaware, Maryland, Georgia, Louisiana, Kentucky and Oregon; total, 80.

Three States did not vote, viz.: Mississippi, Texas and Virginia.

1873, Grant and Wilson—Had the votes of the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Virginia, North Carolina, South Carolina, Alabama, Ohio, Indiana, Illinois, Mississippi, Michigan, Florida, Iowa, Wisconsin, California, Minnesota, Oregon, Kansas, West Virginia, Nebraska and Nevada; total, 286.

Greeley and Brown—Had the votes of the States of Maryland, Georgia, Kentucky, Tennessee, Missouri and Texas; total, 63.

Three electoral votes of Georgia cast for Greeley, and the votes of Arkansas, 6, and Louisiana, 8, cast for Grant, were rejected.

1877, Hayes and Wheeler—Had the votes of the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Pennsylvania, South Carolina, Ohio, Louisiana, Illinois, Michigan, Florida, Iowa, Wisconsin, California, Minnesota, Oregon, Kansas, Nevada, Nebraska and Colorado; total, 185.

Tilden and Hendricks—Had votes of Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, North Carolina, Georgia, Alabama, Kentucky, Tennessee, Indiana, Missouri, Arkansas, Mississippi, Texas and West Virginia; total 184.

1881. Garfield and Arthur—Had votes of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, Ohio, Indiana, Illinois, Michigan, Iowa, Wisconsin, 1 of the 6 of California, Minnesota, Oregon, Kansas, Nebraska and Colorado; total 214.

Hancock and English—Had votes of New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Alabama, Louisiana, Kentucky, Tennessee, Missouri, Arkansas, Mississippi, Florida, Texas, 5 of the 6 of California, West Virginia and Nebraska; total 155.

1884. Cleveland and Hendricks—Had votes of Alabama, Arkansas, Connecticut, Delaware, Florida, Georgia, Indiana, Kentucky, Louisiana, Maryland, Mississippi, Missouri, New Jersey, New York, North Carolina, South Carolina, Tennessee, Texas, Virginia, West Virginia; total 203.

Blaine and Logan—Had votes of California, Colorado, Illinois, Iowa, Kansas, Maine, Massachusetts, Michigan, Minnesota, Nebraska, Nevada, New Hampshire, Ohio, Oregon, Pennsylvania, Rhode Island, Vermont, Wisconsin; total 166.

1888. Harrison and Morton—Had votes of California, Colorado, Illinois, Indiana, Iowa, Kansas, Maine, Massachusetts, Michigan, Minnesota, Nebraska, Nevada, New Hampshire, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Vermont, Wisconsin; total 233.

Cleveland and Thurman—Had votes of Alabama, Arkansas, Connecticut, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Missouri, New Jersey, North Carolina, South Carolina, Tennessee, Texas, Virginia, W. Va.; total 168.

1892. Cleveland and Stevenson—Had votes of Alabama, Arkansas, California, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Kentucky, Louisiana, Maryland, Michigan (5), Mississippi, Missouri, New Jersey, New York, North Carolina, North Dakota (1), Ohio (1), South Carolina, Tennessee, Texas, Virginia, West Virginia, Wisconsin. Total, 277.

Harrison and Reid—Had votes of Iowa, Maine, Massachusetts, Michigan (9), Minnesota, Montana, Nebraska, New Hampshire, North Dakota (1), Ohio (22), Oregon (3), Pennsylvania, Rhode Island, Vermont, Washington, Wyoming. Total, 145.

Weaver (Populist)—Colorado, Idaho, Kansas, Nevada, North Dakota (1), Oregon (1). Total, 22.

1896. McKinley and Hobart—Had votes of California (8 votes), Connecticut, Delaware, Illinois, Indiana, Kentucky (12 votes), Maine, Maryland, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, Vermont, West Virginia, Wisconsin. Total, 271.

Bryan and Sewall—Had votes of Alabama, Arkansas, California (1 vote), Colorado, Florida, Georgia, Idaho, Kansas, Kentucky (1 vote), Louisiana, Mississippi, Missouri, Montana, Nebraska, Nevada, North Carolina, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Washington, Wyoming. Total, 176.

VOTE BY STATES.

Alabama—1824, Dem. maj. 5,280; 1828, Dem. maj. 15,200; 1836, Dem. maj. 3,431; 1840. Dem. maj. 5,520; 1844, Dem. maj. 11,656; 1848, Dem. maj. 881; 1852, Dem. maj. 11,843; 1856, Dem. maj. 18,187; 1860, Dem. maj. 7,355; 1868, Rep. maj. 4,278; 1872, Rep. maj, 10,828; 1876, Dem. maj. 33,772; 1880, Dem. maj 29,867; 1884, Dem. plur. 33,529; 1888, Dem. plur. 60,113; 1892, Dem. plur. 52,957; 1896, Dem. plur. 75,570.

Arkansas—1836, Dem. maj 1,162; 1840, Dem. maj. 889; 1844, Dem. maj. 4,042; 1848, Dem. maj. 1,712, 1852, Dem. maj. 4,769; 1856, Dem. maj. 11,123; 1860, Dem. maj. 3,411; 1868; Rep. maj. 3,034; 1872, Rep. maj. 3,446; 1876, Dem. maj. 19,113; 1880, Dem. maj. 14,749; 1884, Dem. plur. 22,208; 1888, Dem. plur. 27,210; 1892, Dem. plur. 40,950, 1896, Dem. plur. 72,591.

California—1852, Dem. maj. 5,119; 1856, Dem. plur. 17,200; 1860, Rep. plur. 657; 1864, Rep. maj. 18,293; 1868, Rep. maj. 506; 1872, Rep. maj. 12,234: 1876, Rep. maj. 2,738; 1880, Dem. plur. 78; 1884, Rep. plur. 13,128; 1888, Rep. plur. 7,080; 1892, Dem. plur. 144; 1896, Rep, plur. 2,797.

Colorado—1880, Rep. maj. 1,368; 1884, Rep. maj. 8,567; 1888, Rep. plur. 13,224; 1892, Pop. plur. 14,964; 1896, Dem. plur. 134,882.

Connecticut—1824, Loose Constructionist (Rep.) maj. 5,609; 1828, Loose Constructionist (Rep.) maj. 9.381; 1832, Loose Constructionist (Rep.) maj. 6,486; 1836, Dem. maj. 768; 1840, Whig (Rep.) maj. 6,131; 1844, Whig (Rep.) maj. 1,048; 1848, Whig (Rep.) plur. 3,268; 1852, Dem. plur. 2,892; 1856, Rep. maj. 5,105; 1860, Rep. maj. 10,238; 1864, Rep. maj. 2,406; 1868, Rep. maj. 3,043; 1872, Rep. maj. 4,348; 1876, Dem. maj. 1,712; 1880, Rep. maj. 1,788. 1884, Dem, plur. 1,274; 1888, Dem. plur. 336; 1892, Dem. plur. 5,370; 1896, Rep. plur. 53,545.

Delaware—1828, Loose Constructionist (Rep.) maj. 420; 1832, Loose Constructionist (Rep.) maj. 166; 1836, Whig (Rep.) maj. 583; 1840, Whig (Rep.) maj. 1,083, 1844, Whig (Rep.) maj. 282, 1848, Whig (Rep.) maj. 443; 1852, Dem. plur. 25; 1856, Dem. maj. 1,521; 1860, Dem. plur. 3,483; 1864, Dem. maj. 612; 1868, Dem. maj. 3,357; 1872, Rep. maj. 422; 1876, Dem. maj. 2.629; 1880, Dem. maj. 1,023; 1884, Dem. plur. 423; 1888, Dem. plur. 3,441; 1892, Dem. plur. 498; 196, Rep. plur. 3,630.

Florida—1848, Whig. (Rep.) maj. 1,269; 1852, Dem. maj. 1,443; 1856, Dem. maj. 1,525; 1860, Dem. maj. 2;739; 1872, Rep. maj. 2,336; 1876, Rep. maj. 926; 1880, Dem. maj. 4,310; 1884, Dem. plur. 3,738; 1888, Dem. plur. 12,002; 1892, Dem. plur. 25,300; 1896, Dem. plur. 21,448.

Georgia—1836, Whig (Rep.) maj. 2,804; 1840; Whig (Rep.) maj. 8,328; 1844, Dem. maj. 2,071; 1848, Whig (Rep.) maj. 2,742; 1852, Dem. maj. 18,045; 1856, Dem. maj. 14,350; 1860, Dem. plur. 9,003; 1868, Dem. maj. 45,588; 1872, Dem. maj. 9,806; 1876, Dem. maj. 79,642; 1880, Dem. maj. 4,199; 1884, Dem. plur. 46,961; 1888, Dem. plur. 60,029; 1892, Dem. plur. 31,056; 1896, Dem. plur. 34,141.

Idaho—1892, Pop. plur. 1,921; 1896, Dem. plur. 16,868.

Illinois—1824, Dem. plur. 359; 1828, Dem, maj. 5,182; 1832, Dem. maj. 8,718; 1836, Dem. maj. 3.114; 1840, Dem. maj. 1,790; 1844, Dem. maj. 8,822; 1848, Dem. plur. 3,253: 1852, Dem. maj. 5,697; 1856, Dem. plur. 9,159. 1860, Rep. maj. 5,629; 1864, Rep. maj. 30,766; 1868, Rep. maj. 51,160; 1872, Rep. maj. 53,948; 1876, Rep. maj. 1,971; 1880, Rep. maj. 14,358; 1884, Rep. plur. 25,122; 1888, Rep. plur. 22,042; 1892, Dem. plur. 26,993; 1896, Rep. plur. 143,098.

Indiana—1824, Dem. plur. 2,028; 1828, Dem. maj. 5,185; 1832, Dem. maj. 16,080; 1836, Whig (Rep.) maj. 8,801; 1840, Whig (Rep.) maj. 13,607; 1844, Dem. maj. 208; 1848; Dem. plur. 4,838; 1852, Dem. maj. 7,510; 1856, Dem. maj. 1,909; 1860, Rep. maj. 5,923; 1864, Rep. maj. 20,189; 1868, Rep. maj. 9,568; 1872, Rep. maj. 21,098; 1876, Dem. plur. 5,515; 1880, Rep. plur, 6,641; 1884, Dem. plur. 6,527; 1888, Rep. plur. 2,348; 1892, Dem. plur. 7,125; 1896, Rep. plur. 18,181.

Iowa—1848, Dem. plur. 1,009; 1852, Dem. maj. 303; 1856, Rep. plur. 7,784; 1860, Rep. maj. 12,487; 1864, Rep. maj. 39,479; 1868, Rep. maj. 46,359; 1872, Rep. maj, 58,149; 1876, Rep. maj. 50,191; 1880, Rep. maj. 45,732; 1884, Rep. plur. 19,796; 1888, Rep. plur. 31,721; 892, Rep. plur. 22,965; 1896, Rep. plur. 65,552.

Kansas—1864, Rep. maj. 12,750; 1868, Rep. maj. 17,058; 1872, Rep. maj, 33,482; 1876, Rep. maj. 32,511; 1880, Rep. maj, 42,021; 1884, Rep. plur. 64,274; 1888, Rep. plur. 79,961; 1892, Pop. plur. 5,874; 1896, Dem. plur. 12,269.

Kentucky—1824, Loose Constructionist (Rep.) maj. 10,329; 1828, Dem. maj. 7,912; 1832, Loose Constructionist (Rep.) maj. 7,149; 1836, Whig (Rep.) maj. 5,520; 1840, Whig (Rep.) maj. 25,873; 1844, Whig (Rep.) maj. 9,267; 1848, Whig (Rep.) maj. 17,421; 1852, Whig (Rep.) maj. 2,997; 1856, Dem. maj. 6,912; 1860, Constitutional Union plur. 12,915; 1864, Dem. maj. 36,515; 1868, Dem. maj. 76,324; 1872, Dem. maj. 8,855; 1876, Dem. maj. 59,772; 1880, Dem. maj. 31,951; 1884, Dem. plur. 34,839; 1888, Dem. plur. 38,666; 1892, Dem. plur. 40,020; 1896, Rep. plur. 281.

Louisiana—1828, Dem. maj. 508; 1832, Dem, maj. 1,521; 1836, Dem. maj. 270; 1840, Whig (Rep.) maj. 3,680; 1844, Dem. maj. 699; 1848, Whig (Rep.) maj. 2,847; 1852, Dem. maj. 1,392; 1856, Dem. maj. 1,455; 1860, Dem. plur. 2.477; 1868, Dem. maj. 46,962; 1872, Rep. maj. 14,634, 1876, Rep. maj. 4,499; 1880, Dem. maj. 33,419; 884, Dem. plur. 16,250; 1888, Dem. plur. 54,760; 1892, Dem. plur. 61,359; 1896, Dem. plur. 55,138.

Maine—1824, Loose Constructionist (Rep.) maj. 4,540; 1828, Loose Constructionist (Rep.) maj. 6,848; 1840, Whig (Rep.) maj. 217; 1844, Dem. maj. 6,505; 1848, Dem. plur. 4,755; 1852, Dem. maj. 1,036; 1856, Rep, maj. 24,974; 1860, Rep. maj. 27,704; 1864, Rep. maj. 17,592; 1868, Rep. maj. 28,033; 1872, Rep. maj. 32,355; 1876, Rep. maj. 15,814; 1880, Rep. maj. 4,460; 1884, Rep. plur. 20,069; 1888, Rep. plur. 32,252; 1892; Rep. plur. 14,979; 1896, Rep. plur. 44,777.

Maryland—1824, Loose Constrnctionist (Rep.) plur. 109: 1828, Loose Constructionist (Rep.) maj. 1,181; 1832, Loose Constructionist (Rep.) maj, 4; 1836, Whig (Rep) maj. 3,685; 1840, Whig (Rep.) maj. 4,776, 1844, Whig (Rep.) maj. 3.308; 1848, Whig (Rep.) maj. 3,049; 1852, Dem. maj. 4,900; 1856, Know-Nothing maj. 8,064; 1860, Dem. plur. 722; 1864, Rep. maj. 7,414; 1868, Dem maj. 31,919; 1872, Dem. maj. 908; 1876, Dem. maj. 19,756; 1880, Dem. maj. 15,191; 1884, Dem. plur. 11,305; 1888, Dem. plur. 6,182; 1892, Dem. plur. 21,130; 1896, Rep. plur. 32,224.

Massachusetts—1824, Loose Constractionist (Rep.) maj. 24.071; 1828, Loose Constructionist (Rep.) maj. 22,817; 1832, Loose Contionist (Rep.) maj. 18,458; 1836, Whig (Rep.) maj. 7,592; 1840, Whig (Rep.) maj. 19,305; 1844, Whig (Rep.) maj. 2,712; 1848, Whig (Rep.) plur. 23;014: 1852, Whig (Rep.) plur. 8.114; 1856, Rep. Rep. maj. 49,324; 1860, Rep. maj 43,981; 1864, Rep. maj. 77,997; 1868, Rep. 77,069; 1872, Rep. maj, 74,212; 1876, Rep. maj. 40,423; 1880, Rep. maj. 49,097; 1884, Rep. plur. 24,372, 1888, Rep. plur. 31,-457; 1892, Rep. plur. 26,001; 1896, Rep. plur. 173,265

Michigan—1836, Dem. maj. 3.360; 1840, Whig (Rep.) maj. 1,514; 1844, Dem. plur. 3,423; 1848, Dem. plur. 6,747; 1852, Dem. maj. 746; 1856, Rep. maj. 17,966; 1860, Rep. maj. 22,213; 1864, Rep. maj. 16,-917; 1868, Rep. maj. 31,481; 1872, Rep. maj. 55,968; 1876, Rep. maj. 15,542; 1880, Rep. maj. 19,095; 1884, Rep. plur. 3,308; 1888, Rep. plur. 22,903; 1892, Rep. plur. 20,412; 1896, Rep. plur. 56,868.

Minnesota—1860, Rep. maj. 9,339; 1864, Rep. maj. 7,685; 1868, Rep. maj. 15,470; 1872, Rep. maj. 20,694; 1876, Rep. maj. 21,780; 1880, Rep. maj. 40,588; 1884, Rep. plur. 38,738; 1888, Rep. plur. 36,-695; 1892, Rep. plur. 21,903; 1896, Rep. plur. 53,875.

Mississippi—1824, Dem. maj. 1,421; 1828, Dem. maj. 5,182; 1832, Dem. maj. 5,919; 1836, Dem. maj. 291; 1840, Whig, (Rep.) maj. 2 523; 1844, Dem. maj. 5,920; 1848, Dem. maj. 615; 1852, Dem. maj. 9,328; 1856, Dem. maj. 11,251; 1860, Dem. maj. 12,474; 1872, Rep. maj. 34,887; 1876, Dem. maj. 59,568; 1880, Dem. maj. 35,099; 1884, Dem. plur. 33,001; 1888, Dem. plur. 55,375; 1892, Dem. plur. 29,981; 1896, Dem. plur. 58,729.

Missouri—1824, Loose Constructionist (Rep.) maj. 103; 1828, Dem. maj. 4,810; 1832, Dem, maj. 5,192; 1836, Dem. maj. 2,658; 1840, Dem. maj. 6,788; 1844, Dem. maj. 10,118. 1848, Dem. maj. 7,406; 1852, Dem. maj. 8,369; 1856, Dem. maj. 9,640; 1860, Dem. plur. 429; 1864, Rep. maj. 41,072; 1868, Rep. maj. 21,232; 1872, Dem. maj. 29,809; 1876, Dem. maj. 54,389; 1880, Dem. maj. 19,997; 1884, Dem. plur. 33,059; 1888, Dem. plur. 25,701; 1892, Dem. plur. 41,480; 1896, Dem. plur. 58,727.

Montana—1892, Rep. plur. 1,270; 1896, Dem. plur. 32,192;

Nebraska—1868, Rep. maj. 4,290; 1872, Rep. maj. 10,517; 1876, Rep. maj. 10,326, 1880, Rep. maj. 32,603; 1884, Rep. plur. 22,512; 1888, Rep. plur. 27,873; 1892, Rep. plur. 4,093; 1896, Dem. plur. 31,470.

Nevada—1864, Rep. maj. 3,232; 1868, Rep. maj. 1,262; 1882, Rep. maj. 2,177; 1876, Rep. maj. 1,075. 1880, Dem. maj. 879. 1884, Rep. plur. 1,615; 1888, Rep. plur. 1,939; 1892, Rep. plur. 4,453; 1896, Dem. plur. 6,439.

New Hampshire—1824, Loose Constructionist (Rep.) maj. 3,464; 1828, Loose Constructionist (Rep.) maj. 3,384; 1832, Dem. maj. 6,476; 1836, Dem. plur. 12,494; 1840, Dem. maj. 6,386; 1844, Dem. maj. 5,133; 1848, Dem. maj. 5,422; 1852; Dem. maj. 7,155; 1856, Rep. maj. 5,134, 1860, Rep. maj. 9,085; 1864, Rep. maj. 3,529; 1868, Rep. maj. 6,967; 1872, Rep. maj. 5,444; 1876, Rep. maj. 2,954; 1880, Rep. maj. 3,530; 1884, Rep. plur. 4.059; 1888, Rep. plur. 2,370; 1892, Rep, plur. 3,547; 1896, Rep. plur. 35,594.

New Jersey—1824, Dem. maj. 679; 1828. Loose Constructionist (Rep.) maj. 1,808; 1832, Dem. maj. 463; 1836, Whig (Rep.) maj. 545; 1840, Whig (Rep.) maj. 2,248; 1844, Whig (Rep.) maj. 692; 1848, Whig (Rep.) maj. 2,285; 1852, Dem. maj. 5,399; 1856, Dem. plur. 18.605; 1860, Dem. maj. 4,477; 1864, Dem. maj. 7,301, 1868, Dem. maj. 2,870; 1872, Rep. maj. 14,570; 1876, Dem. maj. 11,690; 1880, Dem plur. 2,010; 1884, Dem. plur. 4,412; 1888, Dem. plur. 7,149-892, Dem. plur. 14,974; 1896, Rep. plur. 87,692.

New York—1828, Dem. maj. 4,350; 1832, Dem. maj. 13,601; 1836; Dem. maj. 28,272; 1840. Whig (Rep.) maj. 10,500; 1844, Dem. plur. 5,106; 1848, Whig (Rep.) maj. 98,093; 1852, Dem. maj. 1,872; 1856, Rep. plur. 80,129; 1860 Rep. maj. 50,136; 1864, Rep. maj. 6,749; 1868, Dem. maj. 10,000; 1872, Rep. maj. 51,800; 1876, Dem. maj. 26,568; 1880, Rep. maj. 8,660; 1884, Dem. plur. 1,148; 1888, Rep. plur. 14,373; 1892, Dem. plur. 45,518; 1896, Rep. plur. 268,469.

North Carolina—1824, Dem. maj. 4,794; 1828, Dem. maj. 23,939; 1832, Dem. maj. 20,299; 1836, Dem. maj. 3,284; 1840, Whig (Rep.) maj. 12,158; 1844. Whig (Rep.) maj. 3,945; 1848, Whig (Rep.) maj. 8,681; 1852, Dem. maj. 627; 1856, Dem. maj. 11,360; 1860, Dem. maj. 648; 1868, Rep. maj. 12,168; 1872, Rep. maj. 24,675; 1876, Dem. maj. 17,010; 1880, Dem. maj. 8,326; 1884, Dem. plur. 17.884; 1888, Dem. plur. 13,118; 1892, Dem. plur. 32,609; 1896, Dem. plur. 19,266.

North Dakota—1892, Pop. plur. 181; 1896, Rep. plur. 5,649.

Ohio—1824, Loose Constructionist (Rep.) plur. 798; 1828, Dem. maj. 4,201; 1832, Dem. maj. 4,707; 1836, Whig (Rep.) maj. 8,457; 1840, Whig (Rep.) maj. 22,472; 1844, Whig (Rep.) plur. 5,940; 1848, Dem. plur. 16.415; 1852, Dem. plur. 16,694; 1856, Rep. plur. 16,623; 1860, Rep. maj. 20,779; 1864, Rep. maj. 59,586; 1868, Rep. maj. 41,617; 1872, Rep. maj. 34,268; 1876, Rep. maj. 2,747; 1880, Rep. maj. 27,771; 1884, Rep. plur. 31,602; 1888, Rep. plur. 19,599; 1892, Rep. plur. 1,072; 1896, Rep. plur. 47,497.

Oregon—1860, Rep. plur. 1,318; 1864, Rep. maj. 1,431; 1868, Dem. maj. 164; 1872, Rep. maj. 3,517; 1876, Rep. maj. 547; 1880, Rep. Rep. maj. 422; 1884, Rep. plur. 2.256; 1888, Rep. plur. 6,769; 1892, Fus. plur. 811; 1896, Rep. plur. 2,117.

Pennsylvania—1824, Dem. maj. 24,845; 1828, Dem. maj. 50,804; 1832, Dem. maj. 34,267; 1836, Dem. maj. 4.364; 1840, Whig (Rep.) maj. 2; 1844, Dem. maj. 3,194; 1848, Whig (Rep.) maj. 3,074; 1852, Dem. maj. 10,869; 1856, Dem. maj. 1,025; 1860, Rep. maj. 59,618; 1864, Rep. maj. 20,075; 1868, Rep. maj. 28,898; 1872, Rep. maj. 135,918; 1876, Rep. maj. 9,375; 1880, Rep. maj. 16,608; 1884, Rep. plur. 81,019; 1888, Rep. plur. 79,458; 1892, Rep. plur. 63,767; 1896, Rep. plur. 235,072.

Rhode Island—1824, Loose Constructionist (Rep.) maj. 1,945; 1828, Loose Constructionist (Rep.) maj. 1,933; 1832, Loose Constructionist (Rep.) maj. 684; 1836, Dem. maj. 254; 1840. Whig (Rep.) maj. 1,935; 1844, Whig (Rep.) maj. 2,348; 1848, Whig (Rep.) maj. 2,403; 1852, Dem. maj. 465; 1856, Rep. maj. 3,112; 1860, Rep. maj. 4,537; 1864, Rep. maj. 5,222; 1868, Rep. maj. 6,445; 1872, Rep. maj. 8,336; 1876, Rep. maj. 4,947; 1880, Rep. maj. 7,180; 1884, Rep. plur. 6,639; 1888, Rep. plur. 4,427; 1892, Rep. plur. 2,637; 1896, Rep. plur. 22,978.

South Carolina—1868, Rep. maj. 17,064; 1872, Rep. maj. 49.400; 1876, Rep. maj. 964; 1880, Dem. maj. 54,241; 1884, Dem. plur. 48,112; 1888, Dem. plur, 52,085; 1892, Dem. plur. 41,347; 1896, Dem. plur. 49,517.

South Dakota—1892, Rep. plur. 8,344; 1896, Dem. plur. 183,

Tennessee—1824, Dem. maj. 19,669; 1828, Dem. maj. 41,850; 1832, Dem. maj. 27,304: 1836, Whig (Rep.) maj. 9,842; 1840, Whig (Rep.) maj. 12,102; 1844, Whig (Rep.) maj. 113; 1848, Whig (Rep.) maj. 6,286; 1852, Whig (Rep.) maj. 1,880; 1856, Dem. maj. 7,460; 1860, Constitutional Union plur. 4,565; 1868, Rep. maj. 30,-499; 1872, Dem. maj. 8,736; 1876, Dem. maj. 43,600; 1880, Dem. maj. 14,598; 1884, Dem. plur. 8,275; 1888, Dem. plur. 18,798; 1892, Dem. plur. 38,543; 1896, Dem. plur. 17,495.

Texas—1848, Dem. maj. 6,150; 1852, Dem. maj. 8,557; 1856, Dem. maj. 15,530; 1860, Dem. maj. 32,110; 1872, Dem. maj. 16,595; 1876, Dem. maj. 59,955; 1880, Dem. maj. 70,878; 1884, Dem. plur. 132,-168; 1888, Dem. plur. 146,603; 1892, Dem. plur. 139,4.60; 1896, Dem. plur. 202,914.

Utah—1896, Dem. plur, 51,390.

Vermont—1828, Loose Constructionist (Rep.) maj. 16,579; 1832, Loose Constructionist (Rep.) maj. 3,282; 1836, Whig (Rep.) maj. 6,954; 1840, Whig (Rep.) maj. 14,117; 1844, Whig (Rep.) maj. 4,775; 1848, Whig (Rep.) plur. 9,285; 1852, Whig (Rep.) maj. 508; 1856, Rep. maj. 28,447; 1860, Rep. maj. 24,772; 1864, Rep. maj. 29,098; 1868, Rep. maj. 32,122; 1872, Rep. maj. 29,961; 1876, Rep. maj. 23,838; 1880, Rep. maj. 26,036; 884, Rep. plur. 22,183; 1888, Rep. plur. 28,404; 1892, Rep. plur. 21,667; 1896, Rep. plur. 40,490.

Virginia—1824, Dem. maj. 2,023; 1828, Dem. maj. 14.651; 1832, Dem. maj. 22,158; 1836, Dem. maj. 6,893; 1840, Dem. maj. 1,392; 1844. Dem. maj. 5,893; 1848, Dem. maj. 1,453; 1852, Dem. maj. 15,286; 1856, Dem. maj. 29,105: 1860, Constitutional Union plur. 358; 1872, Rep. maj. 1,772; 1876, Dem. maj. 44,112; 1880, Regular Dem. maj. 12,810; Dem. plur. 6,315; 1884, Dem. plur. 6,141; 1888, Dem. plur. 1,539; 1892, Dem. plur. 50,715; 1896, Dem. plur. 19,341.

Washington—1892, Rep. plur. 6,658; 1896, Dem. plur. 12,433.

West Virginia—1864, Rep. maj. 12,714; 1868, Rep. maj. 8,869; 1872, Rep. maj. 2,264; 1876, Dem. maj. 12,384; 1880, Dem. maj. 2,069; 1884, Dem. plur. 4,221; 1888, Dem. plur. 839; 1892, Dem. plur. 4,174; 1896, Rep. plur. 11,487.

Wisconsin—1848, Dem. plur, 1,254; 1852, Dem. maj. 2,604; 1856, Rep. maj. 12,668; 1860, Rep. maj. 20,040; 1864, Rep. maj. 17,574; 1868, Rep. maj. 24,150; 1872, Rep. maj. 17,686; 1876, Rep. maj. 5,205; 1880, Rep. maj. 21,783; 1884, Rep. plur. 14,693; 1888, Rep. plur. 21,271; 1892, Dem. plur. 6,544; 1896. Rep. plur. 102,612.

Wyoming—1892, Rep. plur. 732; 1896, Dem. plur. 583.

POPULAR VOTE,

SHOWING HOW EACH STATE WENT AND BY WHAT MAJORITY THE PARTY CARRIED IT FROM 1824 TO DATE.

For Presidential candidates from 1824 to and including 1888. Prior to 1824 electors were chosen by the legislatures of the different States.

1824, J. Q. Adams—Had 105,321 to 155,872 for Jackson, 44,282 for Crawford, and 46,587 for Clay. Jackson over Adams, 50,551. Adams less than combined vote of others, 140,869. Of the whole vote Adams had 29.92 per cent., Jackson 44.27, Clay 13.23, Crawford 13.23. Adams elected by House of Representatives.

1828, Jackson—Had 647,231 to 509,097 for Adams. Jackson's majority, 138,134. Of the whole vote Jackson had 55.97 per cent., Adams 44.03.

1832, Jackson—Had 687,502 to 530,189 for Clay, and 33,108 for Floyd and Wirt combined. Jackson's majority, 124,205. Of the whole vote Jackson had 54.96 per cent., Clay 42.39, and others combined 2.65.

1836, Van Buren—Had 761,549 to 736,656, the combined vote for Harrison, White, Webster and Maguin. Van Buren's majority, 24,893. Of the whole vote Van Buren had 50.83 per cent., and the others combined 49.17.

1840, Harrison—Had 1,275,017 to 1,128,702 for Van Buren, and 7,059 for Birney. Harrison's majority, 139,256. Of the whole vote Harrison had 52.89 per cent., Van Buren 46.82, and Birney .29.

1844, Polk—Had 1,337,243 to 1,299,068 for Clay, and 62,300 for Birney. Polk over Clay, 38,175. Polk less than others combined, 24,125. Of the whole vote Polk had 49.55 per cent., Clay 48.14, and Birney 2.21.

1848, Taylor—Had 1,360,101 to 1,220,544 for Cass, and 291,263 for Van Buren. Taylor over Cass, 139,557. Taylor less than others combined, 151,706. Of the whole vote Taylor had 47.36 per cent., Cass, 42.50, and Van Buren 10.14.

1852, Pierce—Had 1,601,474 to 1,386,578 for Scott, and 156,149 for Hale. Pierce over all, 58,747. Of the whole vote Pierce had 50.90 per cent., Scott 44.10, and Hale 4.97.

1856, Buchanan—Had 1,838,169 to 1,341,264 for Fremont, and 874,534 for Fillmore. Buchanan over Fremont 496,905. Buchanan less than combined vote of others, 377,629. Of the whole vote Buchanan had 45.34 per cent., Fremont 33.09, and Fillmore 21.57.

1860, Lincoln—Had 1,866,352 to 1,375,157 for Douglas, 845,763 for Breckinridge, and 589,581 for Bell. Lincoln over Breckinridge, 491,195. Lincoln less than Douglas and Breckinridge combined, 354,568. Lincoln less than combined vote of all others, 944,149. Of the whole vote Lincoln had 39.91 per cent., Douglas 29.40, Breckinridge 18.08, and Bell 12.61.

1864, Lincoln—Had 2,216,067 to 1,808,725 for McClellan. (Eleven States not voting, viz.: Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas and Virginia.) Lincoln's majority, 408,342. Of the whole vote Lincoln had 55.06 per cent., and McClellan 44.94.

1868, Grant—Had 3,015,071 to 2,709,613 for Seymour. (Three States not voting, viz.: Mississippi, Texas and Virginia.) Grant's majority, 305,458. Of the whole vote Grant had 52.67 per cent., and McClellan 47.33.

1872, Grant—Had 3,597,070 to 2,834,079 for Greeley, 29,408 for O'Connor, and 5,608 for Black. Grant's majority 729,975. Of the whole vote Grant had 55.63 per cent., Greeley 43.83, O'Connor .15, Black .09.

1876, Hayes—Had 4,033,950 to 4,284,885 for Tilden, 81,740 for Cooper, 9,522 for Smith, and 2,636 scattering. Tilden's majority over Hayes 250,935. Tilden's majority of the entire vote cast, 157,037. Hayes less than the combined vote of others, 344,833. Of the whole vote cast Hayes had 47.95 per cent., Tilden 50.94 per cent., Cooper .97 per cent., Smith .11 per cent., scattering .03.

1880, Garfield—Had 4,449,053 to 4,442,035 for Hancock, 307, 306 for Weaver, and 12,576 scattering. Garfield over Hancock, 7,018. Garfield less than the combined vote for others, 313,864. Of the popular vote Garfield had 48.26 per cent., Hancock 48.25, Weaver 3.33, scattering .13.

1884, Cleveland—Had 4,913,248 to 4,848,150 for Blaine, 151,062 for St. John, 133,728 for Butler. Cleveland over Blaine, 65,098. Cleveland less than entire vote of opponents, 219,712.

1888, Harrison—Had 5,430,607 to 5,538,045 for Cleveland, 257,243 to Fisk, and 114,623 to the Labor issue. Cleveland over Harrison, 107,438. Harrison less than entire vote of opponents, 479,304.

1892, Cleveland—Had 5,556,918 to 5,176,108 for Harrison, to 1,041,028 for Weaver (Populist), to 264,133 for Bidwell (Prohibition), to 21,164 for Wing (Labor). Cleveland over Harrison, 380,810. Cleveland over all competitors, 3,200.

1896, McKinley—Had 7,105,959 to 6,454,943 for Bryan, to 132,878 for Palmer (Gold-Democrat), to 131,748 for Levering (Prohibition), to 36,260 for Matchett (Social-Labor). McKinley over Bryan, 651,016. McKinley over all competitors, 336,265.

CONCERNING COAL AND IRON.

First notice of stone coal is B. C. 371.

The coal fields of England were the first practically developed.

First record of stone coal used in England was A. D. 820.

Records of regular mining in England first made in 1180.

Coal first used in London in 1240.

First tax laid on coal in England in 1379.

Tax was repealed in 1831, having been taxed 400 years.

First patent for making iron with pit coal was granted to Simeon Sturtevant, in 1612, but was not successful.

On Coal, Steam Heating, Etc.—In 1747 iron was made in England with pit coal, suitable for the manufacture of cannon. In 1788 the production of iron with pit coal in England was 48,300 tons; with charcoal, 13,000 tons. In 1864 the production of iron in Great Britain was 5,000,000 tons. Wooden rails in mines were used in 1777. Cast-iron rails in mines were used in 1790. Wrought-iron rails in mines were used in 1815. Coal gas first made use of practically in 1798.

American Coal Fields.—First coal fields worked in America were the bituminous fields at Richmond, Va., discovered in 1750. This coal was used at Westham, on the James river, to make shot and shell during the War of Independence. The first use of anthracite coal was in 1768-69. First used for smithing purposes in 1790. First used to burn in a common grate in 1808. First successfull use of anthracite coal for the smelting of iron was in 1839, at the Pioneer Furnace, at Pottsville, Pa. It had been tried on the Lehigh in 1826, but was unsuccessful. The great shaft of the Philadelphia and Reading Iron Company has been sunk to a depth of 1,569 feet from the surface to the great mammoth coal vein which attains a thickness of 25 feet, in that distance passing through no less than 15 coal seams, of which 6 are workable and have an average thickness together of 64 feet. Even then there are a number of coal seams underlying these.

-- THE -- Family Physician

The following receipts written by DR. J. H. GUNN will be found of great value, especially in emergencies:

Asthma.—Take hyssop water and poppy water, of each ten ounces; oxymel of squills, six ounces; syrup of maiden hair, two ounces. Take one spoonful when you find any difficulty in breathing.

Ague in the Breast.—Take one part of gum camphor, two parts yellow bees-wax, three parts clean lard; let all melt slowly, in any vessel [earthen best], on stove. Use either cold or warm; spread very thinly on cotton or linen cloths, covering those with flannel. No matter if the breast is broken, it will cure if persevered in. Do not, no matter how painful, cease from drawing milk from the breast that is affected.

Ague, Mixture.—Mix twenty grains quinine with one pint diluted gin or port wine, and add ten grains subcarbonate of iron. Dose, a wine-glass each hour until the ague is broken, and then two or three times a day until the whole has been used.

2. Take Peruvian bark, two ounces; wild cherry tree bark, 1 ounce; cinnamon, one drachm; powdered capsicum, one teaspoonful; sulphur, one ounce; port wine, two quarts. Let it stand a day or two. Dose, a wine-glassful every two or three hours until the disease is broken, and then two or three times a day until all is taken.

Sprained Ankle.—Wash the ankle frequently with cold salt and water, which is far better than warm vinegar or decoctions of herbs. Keep your foot as cold as possible to prevent inflammation, and sit with it elevated on a cushion. Live on very low diet, and take every day some cooling medicine. By obeying these directions only, a sprained ankle has been cured in a few days.

Apoplexy.—Occurs only in the corpulent or obese, and the gross or high livers. To treat, raise the head to a nearly upright position; unloose all tight clothes, strings, etc., and apply cold water to the head and warm water and warm cloths to the feet. Have the apartment cool and well ventilated. Give nothing by the mouth until the breathing is relieved, and then only draughts of cold water.

Preparation for the Cure of Baldness.—Rum, one pint; alcohol, one ounce; distilled water, one ounce, tincture of cantharides, a half drachm; carbonate of potash, a half drachm; carbonate of ammonia, one drachm. Mix the liquids after having dissolved the salts, and filter. After the skin of the head has been wetted with this preparation for several minutes, it should be washed with water.

Bilious Colic.—Mix two tablespoonfuls of Indian meal in half a pint of cold water; drink it at two draughts.

Bilious Complaints.—Take the root and branch of dandelion, and steep it in soft water a sufficient length of time to extract all the essence; then strain the liquor and simmer until it becomes quite thick. Dose: From one to three glasses a day may be taken with good effect.

Blackberry Cordial.—To one quart blackberry juice add one pound white sugar, one tablespoonful each cloves, allspice, cinnamon and nutmeg. Boil together fifteen minutes, and add a wine-glass of whisky, brandy or rum. Bottle while hot, cork tight and seal. Used in diarrhœa and dysentery. Dose, a wine-glassful for an adult, half that quantity for a child. It can be taken three or four times a day if the case is severe.

Blisters.—On the feet, occasioned by walking, are cured by drawing a needleful of worsted thread through them; clip it off at both ends and leave it till the skin peals off.

Raising Blood.—Make a tea of white oak bark, and drink freely during the day; or take half a pound of yellow dock root, boil in new milk, say one quart; drink one gill three times a day, and take one pill of white pine pitch every day.

How to Stop Blood.—Take the fine dust of tea, or the scrapings of the inside of tanned leather. Bind it upon the wound closely, and blood will soon cease to flow.

Boils.—Make a poultice of ginger and flour, and lay it on the boil. This will soon draw it to a head.

Swelled Bowels in Children.—Bathe the stomach of the child with catnip steeped, mixed with fresh butter and sugar.

Chilblains.—Dr. Fergus recommends sulphurous acid in this affection. It should be applied with a camel's hair brush, or by means of a spray producer. One application of this effects a cure. The acid should be used pure. A good wash for hands or feet affected with chilblains is sulphurous acid, three parts; glycerine, one part, and water one part. The acid will be found particularly useful in the irritating, tormenting stage of chilblains.

Chilblains and Chapped Hands.—When chilblains manifest themselves, the best remedy not only for preventing their ulcerating, but overcoming the tingling, itching pain, and stimulating the irculation of the part to healthy action, is the liniment of belladona, two drachms; the liniment of aconite, one drachm; carbolic acid, ten drops; collodion flexile, one ounce; painted with a camel's hair pencil over their surface. When the chilblains vesicate, ulcerate or slough, it is better to omit the aconite and apply the other components of the liniment without it. The collodion

flexile forms a coating or protecting film, which excludes the air, while the sedative liniments allay the irritation, generally of no trivial naturc. For chapped hands we advise the free use of glycerine and good oil, in the proportion of two parts of the former to four of the latter; after this has been well rubbed into the hands and allowed to remain for a little timc, and the hands subsequently washed with Castile soap and water, we recommend the belladonna and collodion flexile to be painted on, and the protcctive film allowed to remain permanently. These complaints not unfrequently invade persons of languid circulation and relaxed habit, who should be put on a generous regimen, and treated with ferruginous tonics. Obstinate cases are occasionally met with which no local application will remedy, unless some disordered state of the system is removed, or the general condition of the patient's health improved. Chapped lips are also benefited by the stimulating form of application wc advocate, but the aconite must not be allowed to get on the lips, or a disagreeable tingling results.

Chilblain Balm.—Boil together ten fluid ounces olive oil, two fluid ounces Venice turpentine, and one ounce yellow wax; strain, and while still warm add, constantly stirring, two and a half drachms balsam of Peru and ten grains camphor.

Cure for Chilblain.—Make a strong lye by boiling wood ashes in water. Put your feet in a small tub and cover them with the lye as hot as you can bear it. Gradually add more lye, hotter and hotter. Keep them in half an hour, bathing and rubbing them continually, and being very careful to keep the lye hot.

Chilblain Lotion.—Dissolve one ounce muriate of ammonia in one-half pint cider vinegar, and apply frequently. One-half pint of alcohol may be added to this lotion with good effects.

Chilblain Ointment.—Take mutton tallow and lard, of each three-fourths of a pound avoirdupois; melt in an iron vessel, and add hydrated oxide of iron, two ounces, stirring continually with an iron spoon until the mass is of a uniform black color; when nearly cool add Venice turpentine, two ounces; Armenian bole, one ounce; oil of bergamot, one drachm; rub up the bole with a little olive oil before putting it in. Apply several times daily by putting it upon lint or linen. It heals the worst cases in a few days.

Russian Remedy for Chilblains.—Slices of the rind of fully ripe cucumbers, dried with the soft parts attached. Previous to use they are softened by soaking them in warm water, and are then bound on the sore parts with the inner side next them, and left on all night. This treatment is said to be adopted for both broken and unbroken chilblains.

How to Cure Itching Chilblains.—Take hydrochloric acid, one part, and water, eight parts; mix. Apply on going to bed. This must not bc used if the skin is broken.

Sal ammoniac, two ounces; rum, one pint; camphor, two drachms. The affected part is wetted night and morning, and when dry is touched with a little simple ointment of any kind—cold cream or pomatum.

Oil of turpentine, four ounces; camphor, six drachms; oil of cajeput, two drachms. Apply with friction.

How to Cure Broken Chilblains.—Mix together four fluid ounces collodion, one and a half fluid ounces Venice turpentine, and onc fluid ounce castor oil.

How to Cure Corns.—Take equal parts of mercurial and galbanum ointments; mix them wcll together, spread on a piece of soft leather, and apply it to the corns morning and evening. In a few days benefit will be derived. Take two ounccs of gum ammoniac, two ounces of yellow wax, and six ounces of verdigris; melt them together, and sprcad the composition on soft leather; cut away as much of the corn as you can, then apply the plaster, and renew it every fortnight till the corn is away. Get four ounces of white diachylon plaster, four ounccs of shoemaker's wax, and sixty drops of muriatic acid or spirits of salt. Boil them for a few minutes in an earthen pipkin, and when cold roll the mass between the hands, and apply it on a piece of white leather. Soak the feet well in warm water, then with a sharp instrument pare off as much of the corn as can be done without pain, and bind up the part with a piece of linen or muslin thoroughly saturated with sperm oil, or, which is better, the oil which floats upon the surface of the herring or mackerel. After three or four days the dressing may be removed by scraping, when the new skin will be found of a soft and healthy texture, and less liable to the formation of a new corn than before. Corns may be prevented by wearing easy shoes. Bathe the feet frequently in lukewarm water, with a little salt or potashes dissolved in it. Thc corn itself will be completely destroyed by rubbing it often with a little caustic solution of potash till the soft skin is formed. Scrape to a pulp sufficient Spanish garlic and bind on the corn over night, after first soaking it well in warm water, and scrape off as much as possible of the hardened portion in the morning. Repeat the application as required.

How to Cure Soft Corns.—Scrape a piece of common chalk, and put a pinch to the soft corn, and bind a piece of linen rag upon it.

How to Cure Tender Corns.—A strong solution of tannic acid is said to be an excellent application to tender feet as well as a preventive of the offensive odor attendant upon their profuse perspiration. To those of our readers who live far away in the country, we would suggest a strong decoction of oak bark as a substitute.

Caustic for Corns.—Tincture of iodine, four drachms; iodide of iron, twelve grains; chloride of antimony, four drachms; mix, and apply with a camel's hair brush, after paring the corn. It is said to curc in three times.

How to Relieve Corns.—Bind them up at night with a cloth wet with tincture of arnica, to relieve the pain, and during the day occasionally moisten the stocking over the corn with arnica if the shoe is not large enough to allow the corn being bound up with a piece of linen rag.

Remedy for Corns.—1. The pain occasioned by corns may be greatly alleviated by the following preparation: Into a one-ounce vial put two drachms of muriatic acid and six drachms of rose-water. With this mixture wet the corns night and morning for three days. Soak the feet every evening in warm water without soap. Put one-third of the acid into the water, and with a little picking the corn will be dissolved. 2. Take a lemon, cut off a small piece, then nick it so as to let in the toc with the corn, tie this on at night so that it cannot move, and in the morning you will find that, with a blunt knife, you may remove a considerable portion of the corn. Make two or three applications, and great relief will be the result.

How to Cure Solvent Corns.—Expose salt of tartar (pearlash) in a wide-mouth vial in a damp place until it forms an oil-likc liquid, and apply to the corn.

How to Cure Cholera.—Take laudanum, tincture cayenne, compound tincture rhubarb, peppermint and camphor, of each equal parts. Dose, ten to thirty drops. In plain terms, take equal parts tincture of opium, red pepper, rhubarb, peppermint and camphor, and mix them for use. In case of diarrhœa, take a dose of ten to twenty drops in three or four teaspoonfuls of water. No one who has this by him, and takcs it in time, will cver have the cholera.

Signs of Disease in Children.—In the case of a baby not yet able to talk, it must cry when it is ill. The colic

makes a baby cry loud, long, and passionately, and shed tears — stopping for a moment and beginning again.

If the chest is affected, it gives one sharp cry, breaking off immediately, as if crying hurt it.

If the head is affected, it cries in sharp, piercing shrieks, with low moans and wails between. Or there may be quiet dozing, and startings between.

It is easy enough to perceive, where a child is attacked by disease, that there has some change taken place; for either its skin will be dry and hot, its appetite gone; it is stupidly sleepy, or fretful or crying; it is thirsty, or pale and languid, or in some way betrays that something is wrong. When a child vomits, or has a diarrhœa, or is costive and feverish, st is owing to some derangement, and needs attention. But these various symptoms may continue for a day or two before the nature of the disease can be determined. A warm bath, warm drinks, etc., can do no harm, and may help to determine the case. On coming out of the bath, and being well rubbed with the hand, the skin will show symptoms of rash, if it is a skin disease which has commenced. By the appearance of the rash, the nature of the disease can be learned. Measles are in patches, dark red, and come out first about the face. If scarlet fever is impending, the skin will look a deep pink all over the body, though most so about the neck and face. Chicken-pox shows fever, but not so much running at the nose, and appearances of cold, as in measles, nor is there as much of a cough. Besides, the spots are smaller, and do not run much together, and are more diffused over the whole surface of the skin; and enlarge into blisters in a day or two.

How to Cure Consumption.—Take one tablespoonful of tar, and the yolks of three hen's eggs, beat them well together. Dose, one tablespoonful morning, noon and night.

Croup, Remedy for in One Minute.—This remedy is simply alum. Take a knife or grater, and shave or grate off in small particles about a teaspoonful of alum; mix it with about twice its quantity of sugar, to make it palatable, and administer as quickly as possible. Its effects will be truly magical, as almost instantaneous relief will be afforded.

Cholera Remedy, Hartshorne's.—Take of chloroform, tincture of opium, spirits of camphor, and spirits of aromatic ammonia, each one and one-half fluid drachms; creosote, three drops; oil of cinnamon, eight drops; brandy, two fluid drachms. Dilute a teaspoonful with a wine-glass of water, and give two teaspoonfuls every five minutes, followed by a lump of ice.

Cure for Dandruff.—Good mild soap is one of the safest remedies, and is sufficient in ordinary cases; carbonate of potash or soda is too alkaline for the skin. Every application removes a portion of the cuticle, as you may observe by the smoothness of the skin of your hands after washing them with it. Borax is recommended; but this is also soda combined with a weak acid, boracic acid, and may by protracted use also injuriously act on the scalp. Soap is also soda or potash combined with the weak, fatty acids; and when the soap contains an excess of the alkalies or is sharp, it is as injurious as the carbonate of potash. All that injures the scalp injures the growth of the hair. One of the best applications from the vegetable kingdom is the mucilaginous decoction of the root of the burdock, called bardane in French (botanical name, *Lappa Minor*). In the mineral kingdom the best remedy is a solution of flowers of sulphur in water, which may be made by the addition of a very small portion of sulphide of potassium, say ten or twenty grains to the pint. This solution is shaken up with the sulphur, and the clear liquid remaining on the top is used. This recipe is founded on the fact that sulphur is a poison for inferior vegetable or animal growth, like dandruff, itch, etc., and is not at all a poison for the superior animal like man.

How to Cure Diphtheria.—A French physician expresses his preference for lemon juice, as a local application in diphtheria, to chlorate of potash, nitrate of silver, perchloride of lime water. He uses it by dipping a little plug of cottonwood, twisted around a wire, in the juice, and pressing it against the diseased surface four or five times daily.

How to Cure Bad Breath.—Bad or foul breath will be removed by taking a teaspoonful of the following mixture after each meal: One ounce liquor of potassa, one ounce chloride of soda, one and one-half ounces phosphate of soda, and three ounces of water.

2. Chlorate of potash, three drachms; rose-water, four ounces. Dose, a tablespoonful four or five times daily.

How to Cure Bunions.—A bunion is a swelling on the ball of the great toe, and is the result of pressure and irritation by friction. The treatment for corns applies also to bunions; but in consequence of the greater extension of the disease, the cure is more tedious. When a bunion is forming it may be stopped by poulticing and carefully opening it with a lancet.

How to Cure Burns and Scalds.—Take half a pound of powdered alum, dissolve it in a quart of water; bathe the burn or scald with a linen rag, wetted with this mixture, then bind the wet rag on it with a strip of linen, and moisten the bandage with the alum water frequently, without removing it during two or three days.

Tea Leaves for Burns.—Dr. Searles, of Warsaw, Wis., reports the immediate relief from pain in severe burns and scalds by the application of a poultice of tea leaves.

How to Cure Cancer.—Boil down the inner bark of red and white oak to the consistency of molasses; apply as a plaster, shifting it once a week; or, burn red-oak bark to ashes; sprinkle it on the sore till it is eaten out; then apply a plaster of tar; or, take garget berries and leaves of stramonium; simmer them together in equal parts of neatsfoot oil and the tops of hemlock; mix well together, and apply it to the parts affected; at the same time make a tea of winter-green (root and branch); put a handful into two quarts of water; add two ounces of sulphur and drink of this tea freely during the day.

Castor Oil Mixture.—Castor oil, one dessert spoonful; magnesia, one dessert spoonful. Rub together into a paste. By this combination, the taste of the oil is almost entirely concealed, and children take it without opposition.

How to Disguise Castor Oil.—Rub up two drops oil of cinnamon with an ounce of glycerine and add an ounce of castor oil. Children will take it as a luxury and ask for more.

Castor Oil Emulsions.—Take castor oil and syrup, each one ounce; the yolk of an egg, and orange flower water, one-half ounce. Mix. This makes a very pleasant emulsion, which is readily taken by adults as well as children.

How to Cure Catarrh.—Take the bark of sassafras root, dry and pound it, use it as a snuff, taking two or three pinches a day.

How to Cure Chilblains.—Wash the parts in strong alum water, apply as hot as can be borne.

How to Cure Cold.—Take three cents' worth of liquorice, three of rock candy, three of gum arabic, and put them into a quart of water; simmer them till thoroughly

dissolved, then add three cents' worth paregoric, and a like quantity of antimonial wine.

How to Cure Corns.—Boil tobacco down to an extract, then mix with it a quantity of white pine pitch, and apply it to the corn; renew it once a week until the corn disappears.

Good Cough Mixture.—Two ounces ammonia mixture; five ounces camphor mixture; one drachm tincture of digitalis (foxglove); one-half ounce each of sweet spirits of nitre and syrup of poppies; two drachms solution of sulphate of morphia. A tablespoonful of this mixture is to be taken four times a day.

2. Tincture of blood-root, one ounce; sulphate of morphia, one and a half grains; tincture of digitalis, one-half ounce; wine of antimony, one-half ounce; oil of wintergreen, ten drops. Mix. Dose from twenty to forty drops twice or three times a day. Excellent for a hard, dry cough.

3. Common sweet cider, boiled down to one-half, makes a most excellent syrup for colds or coughs for children, is pleasant to the taste, and will keep for a year in a cool cellar. In recovering from an illness, the system has a craving for some pleasant drink. This is found in cider which is placed on the fire as soon as made, and allowed to come to a boil, then cooled, put in casks, and kept in a cool cellar.

4. Roast a large lemon very carefully without burning; when it is thoroughly hot, cut and squeeze into a cup upon three ounces of sugar candy, finely powdered; take a spoonful whenever your cough troubles you. It is as good as it is pleasant.

Cure for Deafness.—Take ant's eggs and union juice. Mix and drop them into the ear. Drop into the ear, at night, six or eight drops of hot sweet oil.

Remedies for Diarrhœa.—1. Take one teaspoonful of salt, the same of good vinegar, and a tablespoonful of water; mix and drink. It acts like a charm on the system, and even one dose will generally cure obstinate cases of diarrhœa, or the first stages of cholera. If the first does not bring complete relief, repeate the dose, as it is quite harmless. 2. The best rhubarb root, pulverized, 1 ounce; peppermint leaf, 1 ounce, capsicum, $\frac{1}{8}$ ounce; cover with boiling water and steep thoroughly, strain, and add bicarbonate of potash and essence of cinnamon, of each $\frac{1}{2}$ ounce; with brandy (or good whisky); equal in amount to the whole, and loaf sugar, four ounces. Dose—for an adult, 1 or 2 tablespoons; for a child, 1 to 2 teaspoons, from 3 to 6 times per day, until relief is obtained. 3. To half a bushel of blackberries; well mashed, add a quarter of a pound of allspice, 2 ounces of cinnamon, 2 ounces of cloves; pulverize well, mix and boil slowly until properly done; then strain or squeeze the juice through home-spun or flannel, and add to each pint of the juice 1 pound of loaf sugar, boil again for some time, take it off, and while cooling, add half a gallon of the best Cognac brandy.

Cure for Chronic Diarrhœa.—Rayer recommends the association of cinchona, charcoal and bismuth in the treatment of chronic diarrhœa, in the following proportions: Subnitrate of bismuth, one drachm; cinchona, yellow, powdered, one-half drachm; charcoal, vegetable, one drachm. Make twenty powders and take two or three a day during the intervals between meals.

Cures for Dysentery.—Tincture rhubarb, tincture of capsicum, tincture of camphor, essence of ginger and laudanum, equal parts. Mix; shake well and take from ten to twenty drops every thirty minutes until relief is obtained. This is a dose for an adult. Half the amount for a child under twelve years of age. 2. Take some butter off the churn, immediately after being churned, just as it is, without being salted or washed; clarify it over the fire like honey. Skim off all the milky particles when melted over a clear fire. Let the patient (if an adult) take two tablespoonfuls of the clarified remainder, twice or thrice within the day. This has never failed to effect a cure, and in many cases it has been almost instantaneous. 3. In diseases of this kind the Indians use the roots and leaves of the blackberry bush—a decoction of which, in hot water, well boiled down, is taken in doses of a gill before each meal, and before retiring to bed. It is an almost infallible cure. 4. Beat one egg in a teacup; add one tablespoonful of loaf sugar and half a teaspoonful of ground spice; fill the cup with sweet milk. Give the patient one tablespoonful once in ten minutes until relieved. 5. Take one tablespoonful of common salt, and mix it with two tablespoonfuls of vinegar and pour upon it a half pint of water, either hot or cold (only let it be taken cool.) A wine-glass full of this mixture in the above proportions, taken every half hour, will be found quite efficacious in curing dysentery. If the stomach be nauseated, a wine-glass full taken every hour will suffice. For a child, the quantity should be a teaspoonful of salt and one of vinegar in a teacupful of water.

Dropsy.—Take the leaves of a currant bush and make into tea, drink it.

Cure for Drunkenness.—The following singular means of curing habitual drunkenness is employed by a Russian physician, Dr. Schreiber, of Brzese Litewski: It consists in confining the drunkard in a room, and in furnishing him at discretion with his favorite spirit diluted with two-thirds of water; as much wine, beer and coffee as he desires, but containing one-third of spirit; all the food—the bread, meat, and the legumes are steeped in spirit and water. The poor devil is continually drunk and dort. On the fifth day of this regime he has an extreme disgust for spirit; he earnestly requests other diet; but his desire must not be yielded to, until the poor wretch no longer desires to eat or drink; he is then certainly cured of his penchant for drunkenness. He acquires such a disgust for brandy or other spirits that he is ready to vomit at the very sight of it.

Cure for Dyspepsia.—1. Take bark of white poplar root, boil it thick, and add a little spirit, and then lay it on the stomach.

2. Take wintergreen and black cherry-tree bark and yellow dock: put into two quarts of water; boil down to three pints; take two or three glasses a day.

Here are two remedies for dyspepsia, said by those who "have tried them" to be infallible. 1. Eat onions, 2. Take two parts of well-dried and pounded pods of red pepper, mixed with one part of ground mustard, and sift it over everything you eat or drink.

How to Cure Earache.—Take a small piece of cotton batting or cotton wool, make a depression in the center with the finger, and then fill it up with as much ground pepper as will rest on a five-cent piece; gather it into a ball and tie it up; dip the ball into sweet oil and insert it in the ear, covering the latter with cotton wool, and use a bandage or cap to retain it in its place. Almost instant relief will be experienced; and the application is so gentle that an infant will not get injured by it, but experience relief as well as adults. Roast a piece of lean mutton, squeeze out the juice and drop it into the ear as hot as it can be borne. Roast an onion and put into the ear as hot as it can be borne.

How to Cure Erysipelas.—Dissolve five ounces of salt in one pint of good brandy and take two tablespoonfuls three times per day.

Cure for Inflamed Eyes.—Pour boiling water on alder flowers, and steep them like tea; when cold, put three or four drops of laudanum into a small glass of the alder-tea, and let the mixture run into the eyes two or three times a day, and the eyes will become perfectly strong in the course of a week.

Cure for Weeping Eyes.—Wash the eyes in chamomile tea night and morning.

Eyes, Granular Inflammation.—A prominent oculist says that the contagious Egyptian or granular inflammation of the eyes is spreading throughout the country, and that he has been able in many, and indeed in a majority of cases, to trace the disease to what are commonly called rolling towels. Towels of this kind are generally found in country hotels and the dwellings of the working classes, and, being thus used by nearly every one, are made the carriers of one of the most troublesome diseases of the eye. This being the case, it is urgently recommended that the use of these rolling towels be discarded, and thus one of the special vehicles for the spread of a most dangerous disorder of the eyes—one by which thousands of workingmen are annually deprived of their means of support—will no longer exist.

Cure for Sty in Eye.—Bathe frequently with warm water. When the sty bursts, use an ointment composed of one part of citron ointment and four of spermaceti, well rubbed together, and smear along the edge of the eye-lid.

Cure for Felons.—1. Stir one-half teaspoonful of water into an ounce of Venice turpentine until the mixture appears like granulated honey. Wrap a good coating of it around the finger with a cloth. If the felon is only recent, the pain will be removed in six hours.

2. As soon as the part begins to swell, wrap it with a cloth saturated thoroughly with the tincture of lobelia. An old physician says, that he has known this to cure scores of cases, and that it never fails if applied in season.

Cure for Fever and Ague.—Take of cloves and cream of tartar each one-half ounce, and one ounce of Peruvian bark. Mix in a small quantity of tea, and take it on well days, in such quantities as the stomach will bear.

Cure for Fever Sores.—Take of hoarhound, balm, sarsaparilla, loaf sugar, aloes, gum camphor, honey, spikenard, spirits of turpentine, each two ounces. Dose, one tablespoonful, three mornings, missing three; and for a wash, make a strong tea of sumach, washing the affected parts frequently, and keeping the bandage well wet.

Cure for Fits.—Take of tincture of fox-glove, ten drops at each time twice a day, and increase one drop at each time as long as the stomach will bear it, or it causes a nauseous feeling.

Glycerine Cream.—Receipt for chapped lips: Take of spermaceti, four drachms; white wax, one drachm; oil of almonds, two troy ounces; glycerine, one troy ounce. Melt the spermaceti, wax and oil together, and when cooling stir in glycerine and perfume.

Glycerine Lotion.—For softening the skin of the face and hands, especially during the commencement of cold weather, and also for allaying the irritation caused by the razor: Triturate, four and a half grains of cochineal with one and a half fluid ounces of boiling water, adding gradually; then add two and a half fluid ounces of alcohol. Also make an emulsion of eight drops of ottar of roses with thirty grains of gum arabic and eight fluid ounces of water; then add three fluid ounces of glycerine, and ten fluid drachms of quince mucilage. Mix the two liquids.

Fleshworms.—These specks, when they exist in any number, are a cause of much unsightliness. They are minute corks, if we may use the term, of coagulated lymp, which close the orifices of some of the pores or exhalent vessels of the skin. On the skin immediately adjacent to them being pressed with the finger nails, these bits of coagulated lymph will come from it in a vermicular form. They are vulgarly called "flesh worms," many persons fancying them to be living creatures. These may be got rid of and prevented from returning, by washing with tepid water, by proper friction with a towel, and by the application of a little cold cream. The longer these little piles are permitted to remain in the skin the more firmly they become fixed; and after a time, when they lose their moisture they are converted into long bony spines as dense as bristles, and having much of that character. They are known by the name of spotted acne. With regard to local treatment, the following lotions are calculated to be serviceable: 1. Distilled rose water, 1 pint; sulphate of zinc, 20 to 60 grains. Mix. 2. Sulphate of copper, 20 grains; rose-water, 4 ounces; water, 12 ounces. Mix. 3. Oil of sweet almonds, 1 ounce; fluid potash, 1 drachm. Shake well together and then add rose-water, 1 ounce; pure water, 6 ounces. Mix. The mode of using these remedies is to rub the pimples for some minutes with a rough towel, and then dab them with the lotion. 4. Wash the face twice a day with warm water, and rub dry with a coarse towel. Then with a soft towel rub in a lotion made of two ounces of white brandy, one ounce of cologne, and one-half ounce of liquor potassa.

How to Remove Freckles.—Freckles; so persistently regular in their annual return, have annoyed the fair sex from time immemorial, and various means have been devised to eradicate them, although thus far with no decidedly satisfactory results. The innumerable remedies in use for the removal of these vexatious intruders, are either simple and harmless washes, such as parsley or horseradish water, solutions of borax, etc., or injurious nostrums, consisting principally of lead and mercury salts.

If the exact cause of freckles were known, a remedy for them might be found. A chemist in Moravia, observing the bleaching effect of mercurial preparations, inferred that the growth of a local parasitical fungus was the cause of the discoloration of the skin, which extended and ripened its spores in the warmer season. Knowing that sulpho-carbolate of zinc is a deadly enemy to all parasitic vegetation (itself not being otherwise injurious), he applied this salt for the purpose of removing the freckles. The compound consists of two parts of sulpho-carbolate of zinc, twenty-five parts of distilled glycerine, twenty-five parts of rose-water, and five parts of scented alcohol, and is to be applied twice daily for from half an hour to an hour, then washed off with cold water. Protection against the sun by veiling and other means is recommended, and in addition, for persons of pale complexion, some mild preparation of iron.

Gravel.—1. Make a strong tea of the low herb called heart's ease, and drink freely. 2. Make of Jacob's ladder a strong tea, and drink freely. 3. Make of bean leaves a strong tea, and drink freely.

Wash for the Hair.—Castile soap, finely shaved, one teaspoonful; spirits of hartshorn, one drachm; alcohol, five ounces; cologne water and bay rum, in equal quantities enough to make eight ounces. This should be poured on the head, followed by warm water (soft water); the result will be, on washing, a copious lather and a smarting sensation to the person operated on. Rub this well into the hair. Finally, rinse with warm water, and afterwards with cold water. If the head is very much clogged with dirt, the hair will come out plentifully, but the scalp will become white and perfectly clean.

Hair Restorative.—Take of castor oil, six fluid ounces; alcohol, twenty-six fluid ounces. Dissolve. Then add

tincture of cantharides (made with strong alcohol), one fluid ounce; essence of jessamine (or other perfume), one and a half fluid ounces.

Cure for Heartburn.—Sal volatile combined with camphor is a splendid remedy.

Sick Headache.—Take a teaspoonful of powdered charcoal in molasses every morning, and wash it down with a little tea, or drink half a glass of raw rum or gin, and drink freely of maywced tea.

Headache.—Dr. Silvers, of Ohio, in the Philadelphia *Medical and Surgical Reporter*, recommends ergot in headache, especially the nervous or sick headache. He says it will cure a larger proportion of cases than any other remedy. His theory of its action is that it lessens the quantity of blood in the brain by contracting the muscular fibres of the arterial walls. He gives ten tc twenty drops of the fluid extract, repeated every half hour till relief is obtained, or four or five doses used. In other forms of disease, where opium alone is contra-indicated, its bad effects are moderated, he says, by combining it with ergot.

Headache Drops.—For the cure of nervous, sun, and sick headache, take two quarts of alcohol, three ounces of Castile soap, one ounce camphor, and two ounces ammonia. Bathe forehead and temples.

Hive Syrup.—Put one ounce each of squills and seneca snake-root into one pint of water; boil down to one-half and strain. Then add one-half pound of clarified honey containing twelve grains tartrate of antimony. Dose for a child, ten drops to one teaspoonful, according to age. An excellent remedy for croup.

How to Clean the Hair.—From the too frequent use of oils in the hair, many ladies destroy the tone and color of their tresses. The Hindoos have a way of remedying this. They take a hand basin filled with cold water, and have ready a small quantity of pea flour. The hair is in the first place submitted to the operation of being washed in cold water, a handful of the pea flour is then applied to the head and rubbed into the hair for ten minutes at least, the servant adding fresh water at short intervals, until it becomes a perfect lather. The whole head is then washed quite clean with copious supplies of the aqueous fluid, combed, and afterwards rubbed dry by means of coarse towels. The hard and soft brush is then resorted to, when the hair will be found to be wholly free from all encumbering oils and other impurities, and assume a glossy softness, equal to the most delicate silk. This process tends to preserve the tone and natural color of the hair, which is so frequently destroyed by the too constant use of caustic cosmetics.

How to Soften Hands.—After cleansing the hands with soap, rub them well with oatmeal while wet.

How to Remove Stains from Hands.—Damp the hands first in water, then rub them with tartaric acid, or salt of lemons, as you would with soap; rinse them and rub them dry. Tartaric acid, or salt of lemons, will quickly remove stains from white muslin or linen. Put less than half a teaspoonful of salt or acid into a tablespoonful of water; wet the stain with it, and lay it in the sun for an hour; wet it once or twice with cold water during the time; if this does not quite remove it, repeat the acid water, and lay it in the sun.

How to Whiten Hands.—1. Stir ¼ of a pound of Castile soap, and place it in a jar near the fire, pour over it ½ pint of alcohol; when the soap is dissolved and mixed with the spirit, add 1 ounce of glycerine, the same of oil of almonds, with a few drops of essence of violets, or ottar of roses, then pour it into moulds to cool for use. 2. A wineglassful of eau-de-cologne, and one of lemon-juice, two cakes of broken Windsor soap, mixed well together, when hard, will form an excellent substance.

How to Cure Scurf in the Head.—A simple and effectual remedy. Into a pint of water drop a lump of fresh quick lime, the size of a walnut; let it stand all night, then pour the water off clear from the sediment or deposit, add ¼ of a pint of the best vinegar, and wash the head with the mixture. Perfectly harmless; only wet the roots of the hair.

How to Cure Chapped Lips.—Take 2 ounces of white wax, 1 ounce of spermaceti, 4 ounces of oil of almonds, 2 ounces of honey, ¼ of an ounce of essence of bergamot, or any other scent. Melt the wax and spermaceti; then add the honey, and melt all together, and when hot add the almond oil by degrees, stirring till cold. 2. Take oil of almonds 3 ounces; spermaceti, ½ ounce; virgin rice, ½ ounce. Melt these together over a slow fire, mixing with them a little powder of alkane root to color it. Keep stirring till cold, and then add a few drops of the oil of rhodium. 3. Take oil of almonds, spermaceti, white wax, and white sugar candy, equal parts. These form a good, white lip salve.

How to Remove Moth Patches.—Wash the patches with solution of common bicarbonate of soda and water several times during the day for two days, or until the patches are removed, which will usually be in forty-eight hours. After the process wash with some nice toilet soap, and the skin will be left nice, smooth and clear of patches.

How to Take Care of the Nails.—The nails should be kept clean by the daily use of the nail brush and soap and water. After wiping the hands, but while they are still soft from the action of the water, gently push back the skin which is apt to grow over the nails, which will not only preserve them neatly rounded, but will prevent the skin from cracking around their roots (nail springs), and becoming sore. The points of the nail should be pared at least once a week; biting them should be avoided.

How to Cure Hiccough.—A convulsive motion of the diaphragm and parts adjacent. The common causes are flatuency, indigestion, acidity and worms. It may usually be removed by the exhibition of warm carminatives, cordials, cold water, weak spirits, camphor julep, or spirits of sal volatile. A sudden fright or surprise will often produce the like effect. An instance is recorded of a delicate young lady that was troubled with hiccough for some months, and who was reduced to a state of extreme debility from the loss of sleep occasioned thereby, who was cured by a fright, after medicines and topical applications had failed. A pinch of snuff, a glass of cold soda-water, or an ice-cream, will also frequently remove this complaint.

How to Cure Hoarseness.—Make a strong tea of horse-radish and yellow dock root, sweetened with honey and drink freely.

Remedies for Hoarseness.—Take one drachm of freshly scraped horse-radish root, to be infused with four ounces of water in a close vessel for three hours, and made into a syrup, with double its quantity of vinegar. A teaspoonful has often proved effectual.

How to Cure Humors.—Take equal parts of saffron and seneca snake root, make a strong tea, drink one half-pint a day, and this will drive out all humors from the system.

How to Cure Hysterics.—Take the leaves of motherwort and thoroughwort, and the bark of poplar root; equal parts. Mix them in molasses, and take four of them when the first symptoms of disorder are felt, and they will effectually check it.

How to Cure Barber's Itch.—Moisten the parts affected with saliva (spittle) and rub it over thoroughly

three times a day with the ashes of a good Havana cigar. This is a simple remedy, yet it has cured the most obstinate cases.

Itch Ointment.—1. Take lard, one pound; suet, one pound; sugar of lead, eight ounces; vermillion, two ounces. Mix. Scent with a little bergamot. 2. Take bichloride of mercury, one ounce; lard, one pound; suet, one pound; hydrochloride acid, one and a half ounces. Melt and well mix, and when perfectly cold, stir in essence of lemon, four drachms; essence of bergamot, one drachm. 3. Take powdered chloride of lime, one ounce; lard, one pound. Mix well, then add essence of lemon, two drachms. 4. Take bichloride of mercury, one part; lard, fifteen parts. Mix well together. 5. Take white precipitate, one part; lard, twelve parts. Mix. A portion of either of these ointments must be well rubbed on the parts affected, night and morning.

How to Cure Seven-Year Itch.—1. Use plenty of castile soap and water, and then apply freely iodide of sulphur ointment; or take any given quantity of simple sulphur ointment and color it to a light brown or chocolate color with the subcarbonate of iron, and then perfume it. Apply this freely, and if the case should be a severe one, administer mild alteratives in conjunction with the outward application. 2. The sulphur bath is a good remedy for itch or any other kind of skin diseases. Leprosy (the most obstinate of all) has been completely cured by it, and the common itch only requires two or three applications to completely eradicate it from the system. 3. Benzine, it is said, will effect a complete cure for scabies in the course of half to three-quarters of an hour, after which the patient should take a warm bath from twenty to thirty minutes.

How to Cure Jaundice.—1. Take the whites of two hen's eggs, beat them up well in a gill of water; take of this a little every morning; it will soon do good. It also creates an appetite, and strengthens the stomach. 2. Take of black cherry-tree bark, two ounces; blood root and gold thread, each half an ounce; put in a pint of brandy. Dose, from a teaspoonful to a tablespoonful morning and night.

How to Cure Stiffened Joints.—Take of the bark of white oak and sweet apple trees, equal parts; boil them down to a thick substance, and then add the same quantity of goose-grease or oil, simmer all together, and then rub it on the parts warm.

How to Cure Kidney Disease.—Equal parts of the oil of red cedar and the oil of spearmint.

How to Cure Lame Back.—Take the berries of red cedar and allow them to simmer in neatsfoot oil, and use as an ointment.

How to Kill Lice.—All kinds of lice and their nits may be got rid of by washing with a simple decoction of stavesacre (*Delphinium staphisagria*), or with a lotion made with the bruised seed in vinegar, or with the tincture, or by rubbing in a salve made with the seeds and four times their weight of lard very carefully beaten together. The acetic solution and the tincture are the cleanliest and most agreeable preparations, but all are equally efficacious in destroying both the creatures and their eggs, and even in relieving the intolerable itching which their casual presence leaves behind on many sensitive skins. The alkaloid delphinia may also be employed, but possesses no advantage except in the preparation of an ointment, when from any reason that form of application should be preferred.

Rheumatic Liniment.—Olive oil, spirits of camphor and chloroform, of each two ounces; sassafras oil, 1 drachm. Add the oil of sassafras to the olive oil, then the spirits of camphor, and shake well before putting in the chloroform; shake when used, and keep it corked, as the chloroform evaporates very fast if it is left open. Apply three or four times daily, rubbing in well, and always toward the body.

Sore Throat Liniment.—Gum camphor, two ounces; castile soap, shaved fine, one drachm; oil of turpentine and oil of origanum, each one-half ounce; opium, one-fourth of an ounce; alcohol, one pint. In a week or ten days they will be fit for use. Bathe the parts freely two or three times daily until relief is obtained.

A Wonderful Liniment.—Two ounces oil of spike, two ounces origanum, two ounces hemlock, two ounces wormwood, four ounces sweet oil, two ounces spirit of ammonia, two ounces gum camphor, two ounces spirits turpentine. Add one quart strong alcohol. Mix well together, and bottle tight. This is an unequaled horse liniment, and of the best ever made for human ailments such as rheumatism, sprains, etc.

How to Cure Sore Lips.—Wash the lips with a strong tea, made from the bark of the white oak.

Liver Complaint.—Make a strong tea of syrup of burdock, wormwood and dandelion, equal parts, and drink freely.

Lock Jaw.—It is said that the application of warm lye, made of ashes as strong as possible, to a wounded part, will prevent a locked jaw; if a foot or hand, immerse in it; if another part of the body, bathe with flannels wrung out of the warm lye.

Mumps.—This disease, most common among children, begins with soreness and stiffness in the side of the neck. Soon a swelling of the parotid gland takes place, which is painful, and continues to increase for four or five days, sometimes making it difficult to swallow, or open the mouth. The swelling sometimes comes on one side at a time, but commonly upon both. There is often heat, and sometimes fever, with a dry skin, quick pulse, furred tongue, constipated bowls, and scanty and high-colored urine. The disease is contagious. The treatment is very simple—a mild diet, gentle laxative, occasional hot fomentations, and wearing a piece of flannel round the throat.

How to Prevent Ingrowing Nails.—If the nail of your toe be hard, and apt to grow round, and into the corners of your toe, take a piece of broken glass and scrape the top very thin; do this whenever you cut your nails, and by constant use it makes the corners fly up and grow flat, so that it is impossible they should give you any pain.

How to Whiten Nails.—The best wash for whitening the nails is two drachms of diluted sulphuric acid, one drachm of tincture of myrrh, added to four ounces of spring water; first cleanse the hands, and then apply the wash.

Sure Cure for Neuralgia.—1. Fill a tight-top thimble with cotton wool, and drop on it a few drops of strong spirits of hartshorn. The open mouth of the thimble is then applied over the seat of pain for a minute or two, until the skin is blistered. The skin is then rubbed off, and upon the denuded surface a small quantity of morphia (one-fourth grain) is applied. This affords almost instant relief. A second application of the morphia, if required, is to be preceded by first rubbing off the new formation that has sprung up over the former blistered surface.

2. Dr. J. Knox Hodge recommends the following as an application which will relieve facial or any other neuralgia almost instantaneously: Albumen of egg, one drachm; rhigolene, four ounces; oil of peppermint, two ounces; colodion and chloroform, each one ounce. Mix. Agitate occasionally for twenty-four hours, and by gelatinization a beautiful and semi-solidified, opodeldoc-looking compound

results, which will retain its consistency and hold the ingredients intimately blended for months. Apply by smart friction with the hand, or gently with a soft brush or mop along the course of the nerve involved.

3. Mix one and one-half drachms iodide of potash, fifteen grains of quinine and one ounce ginger syrup, and two and a half ounces water. Dose, a tablespoonful every three hours.

4. **Of the Stomach.**—Take of distilled water of cherry laurel, five parts; muriate of morphia, one-tenth part. Mix and dissolve. One drop on a lump of sugar immediately before meals.

Ointment for Sore Nipples.—Glycerine, rose water and tannin, equal weights, rubbed together into an ointment, is very highly recommended for sore or cracked nipples.

Glycerine Ointment.—Melt together spermaceti, two drachms; white wax, one-half drachm; oil of sweet almonds, two ounces, and then add glycerine, one ounce, and stir briskly until cool. An admirable application for chapped hands, etc.

Ointment for Itch.—White precipitate, fifteen grains; saltpetre, one-half drachm; flour of sulphur, one drachm; Mix well with lard, two ounces. Long celebrated for the cure of itch.

Sulphur Ointment.—Flour of sulphur, eight ounces; oil of bergamot, two drachms; lard, one pound. Rub freely three times a day, for itch.

Ointment for Piles.—Tannin, two drachms; water, two fluid drachms; triturate together, and add lard, one and a half drachms. An excellent application for piles.

Ointment for Hemorrhoids.—Sulphate of morphia, three grains; extract of stramonia, thirty grains; olive oil, one drachm; carbonate of lead, sixty grains; lard, three drachms.

Pains.—1. Steep marigold in good cider vinegar and frequently wash the affected parts. This will afford speedy relief.

2. Take half a pound of tar and the same quantity of tobacco, and boil them down separately to a thick substance; then simmer them together. Spread a plaster and apply it to the affected parts, and it will afford immediate relief.

Painters' Colic.—Make of tartaric acid a syrup similar to that of lemon syrup; add a sufficient quantity of water, and drink two or three glasses a day.

Instantaneous Pain-Killer.—Another and even more instant cure of pain is made as follows: Take aqua-ammonia, sulphuric ether and alcohol, equal parts, and apply over the pain.

How to Cure Pimples.—Take a teaspoonful of the tincture of gum guaiacum and one teaspoonful of vinegar; mix well and apply to the affected parts.

Poor Man's Plaster.—Melt together beeswax, one ounce; tar, three ounces; resin, three ounces, and spread on paper or muslin.

Rheumatic Plaster.—One-fourth pound of resin and one-fourth pound of sulphur; melt by a slow fire, and add one ounce of Cayenne pepper and one-fourth of an ounce of camphor gum; stir well till mixed, and temper with neatsfoot oil.

Strengthening Plaster.—Litharge plasters, twenty-four parts; white resin, six parts; yellow wax and olive oil, of each three parts, and red oxide of iron, eight parts. Let the oxide be rubbed with the oil, and the other ingredients added melted, and mix the whole well together. The plaster, after being spread over the leather, should be cut into strips two inches wide and strapped firmly around the joint.

Mustard Plasters.—It is stated that in making a mustard plaster, no water whatever should be used, but the mustard mixed with the white of an egg; the result will be a plaster that will "draw" perfectly, but will not produce a blister even upon the skin of an infant, no matter how long it is allowed to remain upon the part.

Bread and Milk Poultice.—Take stale bread in crumbs, pour boiling sweet milk, or milk and water over it, and simmer till soft, stirring it well; then take it from the fire, and gradually stir in a little glycerine or sweet oil, so as to render the poultice pliable when applied.

Linseed Poultice.—Take of linseed, powdered, four ounces; hot water sufficient, mix and stir well with a spoon, until of suitable consistence. A little oil should be added, and some smeared over the surface as well, to prevent its getting hard. A very excellent poultice, suitable for many purposes.

Spice Poultice.—Powdered cinnamon, cloves and Cayenne pepper, of each two ounces; rye meal, or flour, spirits and honey, of each sufficient to make of suitable consistence.

Quinsy.—This is an inflammation of the tonsils, or common inflammatory sore throat; commences with a slight feverish attack, with considerable pain and swelling of the tonsils, causing some difficulty in swallowing; as the attack advances these symptoms become more intense, there is headache, thirst, a painful sense of tension, and acute darting pains in the ears. The attack is generally brought on by exposure to cold, and lasts from five to seven days, when it subsides naturally, or an abscess may form in tonsils and burst, or the tonsil may remain enlarged, the inflammation subsiding.

TREATMENT.—The patient should remain in a warm room, the diet chiefly milk and good broths, some cooling laxative and diaphoretic medicine may be given; but the greatest relief will be found in the frequent inhalation of the steam of hot water through an inhaler, or in the old-fashioned way, through the spout of a teapot.

Other Remedies for Rheumatism.—1. Bathe the parts affected with water in which potatoes have been boiled, as hot as can be borne, just before going to bed; by morning it will be much relieved, if not removed. One application of this simple remedy has cured the most obstinate of rheumatic pains. 2. Half an ounce of pulverized saltpetre put in half a pint of sweet oil; bathe the parts affected, and a sound cure will be speedily effected. 3. Rheumatism has frequently been cured by a persistent use of lemon juice, either undiluted or in the form of lemonade. Suck half a lemon every morning before breakfast, and occasionally during the day, and partake of lemonade when thirsty in preference to any other drink. If severely afflicted a physician should be consulted; but, in all cases, lemon juice will hasten the cure. 4. By the valerian bath, made simply by taking one pound of valerian root, boiling it gently for about a quarter of an hour in one gallon of water, straining and adding the strained liquid to about twenty gallons of water in an ordinary bath. The temperature should be about ninety-eight degrees, and the time of immersion from twenty minutes to half an hour. Pains must be taken to dry the patient perfectly upon getting out of the bath. If the inflammation remain refractory in any of the joints, linseed meal poultices should be made with a strong decoction of valerian root and applied.

How to Cure Ring-Worm.—To one part sulphuric acid, add sixteen to twenty parts water. Use a brush and feather, and apply it to the parts night and morning. A few dressings will generally cure. If the solution is too

strong and causes pain, dilute it with water, and if the irritation is excessive, rub on a little oil or other softening application, but always avoid the use of soap.

Or, wash the head with soft soap every morning, and apply the following lotion every night: One-half drachm of sub-carbonate of soda dissolved in one gill of vinegar.

Healing Salve.—Sweet oil, three quarts; resin, three ounces; beeswax, three ounces. Melt together; then add powdered red lead, two pounds; heat all these together and when nearly cold add a piece of camphor as large as a nutmeg. Good for burns, etc.

Salt Rheum.—1. Make a strong tea of elm root bark; drink the tea freely, and wash the affected part in the same. 2. Take one ounce of blue flag root, steep it in half a pint of gin; take a teaspoonful three times a day, morning, noon and night, and wash with the same. 3. Take one ounce of oil of tar, one drachm of oil of checker berry; mix. Take from five to twenty drops morning and night as the stomach will bear.

Bleeding of the Stomach.—Take a teaspoonful of camomile tea every ten minutes until the bleeding stops.

Sickness of Stomach.—Drink three or four times a day of the steep made from the bark of white poplar roots.

Sunburn and Tan.—1. Take two drachms of borax, one drachm of Roman alum, one drachm of camphor, half an ounce of sugar candy, and a pound of ox-gall. Mix, and stir well for ten minutes or so, and repeat this stirring three or four times a day for a fortnight, till it appears clear and transparent. Strain through blotting paper, and bottle up for use. 2. Milk of almonds made thus: Take of blanched bitter almonds half an ounce, soft water half a pint; make an emulsion by beating the almonds and water together, strain through a muslin cloth, and it is made. 3. A preparation composed of equal parts of olive oil and lime water is also an excellent remedy for sunburn.

To Produce Sweat.—Take of nitre, one-half drachm; snake's head (herb), saffron, camphor, snake-root, seneca, bark of sassafras root, each one ounce; ipecac, and opium, each one-half ounce; put the above in three quarts of Holland gin, and take a tablespoonful in catnip tea every few minutes, till a sweat is produced.

Teething.—Young children whilst cutting their first set of teeth often suffer severe constitutional disturbance. At first there is restlessness and peevishness, with slight fever, but not unfrequently these are followed by convulsive fits, as they are commonly called, which depends on the brain becoming irritated; and sometimes under this condition the child is either cut off suddenly, or the foundation of serious mischief to the brain is laid. The remedy, or rather the safeguard, against these frightful consequences is trifling, safe, and almost certain, and consists merely in lancing the gum covering the tooth which is making its making its way through. When teething is about it may be known by the spittle constantly driveling from the mouth and wetting the frock. The child has its fingers in its mouth, and bites hard any substance it can get hold of. If the gums be carefully looked at, the part where the tooth is pressing up is swollen and redder than usual; and if the finger be pressed on it the child shrinks and cries, showing that the gum is tender. When these symptoms occur, the gum should be lanced, and sometimes the tooth comes through the next day, if near the surface; but if not so far advanced the cut heals and a scar forms, which is thought by some objectionable, as rendering the passage of the tooth more difficult. This, however, is untrue, for the scar will give way much more easily than the uncut gum. If the tooth does not come through after two or three days, the lancing may be repeated; and this is more especially needed if the child be very fractious, and seems in much pain. Lancing the gums is further advantageous, because it empties the inflamed part of its blood, and so relieves the pain and inflammation. The relief children experience in the course of two or three hours from the operation is often very remarkable, as they almost immediately become lively and cheerful.

Wash for Teeth and Gums.—The teeth should be washed night and morning, a moderately small and soft brush being used; after the morning ablution, pour on a second tooth-brush, slightly dampened, a little of the following lotion: Carbolic acid, 20 drops; spirits of wine, 2 drachms; distilled water, 6 ounces. After using this lotion a short time the gums become firmer and less tender, and impurity of the breath (which is most commonly caused by bad teeth), will be removed. It is a great mistake to use hard tooth-brushes, or to brush the teeth until the gums bleed.

Tetter.—After a slight feverish attack, lasting two or three days, clusters of small, transparent pimples, filled sometimes with a colorless, sometimes with a brownish lymph, appear on the cheeks or forehead, or on the extremities, and at times on the body. The pimples are about the size of a pea, and break after a few days, when a brown or yellow crust is formed over them, which falls off about the tenth day, leaving the skin red and irritable. The eruption is attended with heat; itching, tingling, fever, and restlessness, especially at night. Ringworm is a curious form of tetter, in which the inflamed patches assume the form of a ring.

TREATMENT—Should consist of light diet, and gentle laxatives. If the patient be advanced in life, and feeble, a tonic will be desirable. For a wash, white vitriol, 1 drachm; rose-water, 3 ounces, mixed; or an ointment made of alder-flower ointment, 1 ounce; oxide of zinc, 1 drachm.

To Remove Tan.—Tan may be removed from the face by mixing magnesia in soft water to the consistency of paste, which should then be spread on the face and allowed to remain a minute or two. Then wash off with Castile soap suds, and rinse with soft water.

Care of the Teeth.—The mouth has a temperature of 98 degrees, warmer than is ever experienced in the shade in the latitude of New England. It is well known that if beef, for example, be exposed in the shade during the warmest of our summer days, it will very soon decompose. If we eat beef for dinner, the particles invariably find their way into the spaces between the teeth. Now, if these particles of beef are not removed, they will frequently remain till they are softened by decomposition. In most mouths this process of decomposition is in constant progress. Ought we to be surprised that the gums and teeth against which these decomposing or putrefying masses lie should become subjects of disease?

How shall our teeth be preserved? The answer is very simple—keep them very clean. How shall they be kept clean? Answer—By a toothpick, rinsing with water, and the daily use of a brush.

The toothpick should be a quill, not because the metalic picks injure the enamel, but because the quill pick is so flexible it fits into all the irregularities between the teeth.

Always after using the toothpick the mouth should be thoroughly rinsed. If warm water be not at hand, cold may be used, although warm is much better. Closing the lips, with a motion familiar to all, everything may be thoroughly rinsed from the mouth.

Every morning (on rising), and every evening (on going to bed), the tooth-brush should be used, and the teeth, both outside and inside, thoroughly brushed.

Much has been said *pro* and *con.*, upon the use of soap with the tooth-brush. My own experience and the

experience of members of my family is highly favorable to the regular morning and evening use of soap. Castile or other good soap will answer this purpose. (Whatever is good for the hands and face is good for the teeth.) The slightly unpleasant taste which soap has when we begin to use it will soon be unnoticed.

Tooth Powders.—Many persons, while laudably attentive to the preservation of their teeth, do them harm by too much officiousness. They daily apply to them some dentifrice powder, which they rub so hard as not only to injure the enamel by excessive friction, but to hurt the gums even more than by the abuse of the toothpick. The quality of some of the dentifrice powders advertised in newspapers is extremely suspicious, and there is reason to think that they are not altogether free from a corrosive ingredient. One of the safest and best compositions for the purpose is a mixture of two parts of prepared chalk, one of Peruvian bark, and one of hard soap, all finely powdered, which is calculated not only to clean the teeth without hurting them, but to preserve the firmness of the gums.

Besides the advantage of sound teeth for their use in mastication, a proper attention to their treatment conduces not a little to the sweetness of the breath. This is, indeed, often affected by other causes existing in the lungs, the stomach, and sometimes even in the bowels, but a rotten state of the teeth, both from the putrid smell emitted by carious bones and the impurities lodged in their cavities, never fails of aggravating an unpleasant breath wherever there is a tendency of that kind.

Remedies for Toothache.—1. One drachm of alum reduced to an impalpable powder, three drachms of nitrous spirits of ether—mix, and apply them to the tooth on cotton. 2. Mix a little salt and alum, equal portions, grind it fine, wet a little lock of cotton, fill it with the powder and put it in your tooth. One or two applications seldom fail to cure. 3. To one drachm of collodion add two drachms of Calvert's carbolic acid. A gelatinous mass is precipitated, a small portion of which, inserted in the cavity of an aching tooth, invariably gives immediate relief. 4. Saturate a small bit of clean cotton wool with a strong solution of ammonia, and apply it immediately to the affected tooth. The pleasing contrast immediately produced in some cases causes fits of laughter, although a moment previous extreme suffering and anguish prevailed. 5. Sometimes a sound tooth aches from sympathy of the nerves of the face with other nerves. But when toothache proceeds from a decayed tooth either have it taken out, or put hot fomentations upon the face, and hot drinks into the mouth, such as tincture of cayenne.

To Cure Warts.—Warts are formed by the small arteries, veins, and nerves united together, taking on a disposition to grow by extending themselves upward, carrying the scarf-skin along with them, which, thickening, forms a wart. Corns are a similar growth, brought about by the friction of tight boots and shoes. 1. Take a piece of diachylon plaster, cut a hole in the centre the size of the wart, and stick it on, the wart protruding through. Then touch it daily with aquafortis, or nitrate of silver. They may be removed by tying a string tightly around them. 2. Take a blacksmith's punch, heat it red hot and burn the warts with the end of it. When the burn gets well the warts will be gone forever. 3. Scrape down enough dry cobwebs to make a ball large enough to, or a little more than, cover the wart and not touch the flesh around the same; lay it on top of the wart, ignite it and let it be until it is all burnt up. The wart will turn white, and in a few days come out. 4. Pass a pin through the wart; apply one end of the pin to the flame of a lamp; hold it there until the wart fries under the action of the heat. A wart so treated will leave. 5. Dissolve as much common washing soda as the water will take up; wash the warts with this for a minute or two, and let them dry without wiping. Keep the water in a bottle and repeat the washing often, and it will take away the largest warts. 6. They may be cured surely by paring them down until the blood comes slightly and then rubbing them with lunar caustic. It is needless to say this hurts a little, but it is a sure cure. The hydrochlorate of lime applied in the same way will cure after several applications and some patience; so will strong good vinegar, and so it is said will milk weed. The cures founded upon superstitious practices, such as muttering some phrases over the excrescence, stealing a piece of beef, rubbing the wart therewith and then burying it under the leaves to await its decay, etc., etc., are all the remnants of a past state of ignorance and are of no use whatever. Warts are generally only temporary and disappear as their possessors grow up.

How to Cure White Swelling.—Draw a blister on the inside of the leg below the knee; keep it running with ointment made of hen manure, by simmering it in hog's lard with onions; rub the knee with the following kind of ointment: Bits of peppermint, oil of sassafras, checkerberry, juniper, one drachm each; simmer in one-half pint neatsfoot oil, and rub on the knee three times a day.

How to Cure Wounds.—Catnip steeped, mixed with fresh butter and sugar.

How to Cure Whooping-Cough.—Take a quart of spring water, put in it a large handful of chin-cups that grow upon moss, a large handful of unset hyssop; boil it to a pint, strain it off, and sweeten it with sugar-candy. Let the child, as often as it coughs, take two spoonfuls at a time.

How to Cure Worms in Children.—1. Take one ounce of powdered snake-head (herb), and one drachm each of aloes and prickly ash bark; powder these, and to one-half teaspoonful of this powder add a teaspoonful of boiling water and a teaspoonful of molasses. Take this as a dose, night or morning, more or less, as the symptoms may require. 2. Take tobacco leaves, pound them up with honey, and lay them on the belly of the child or grown person, at the same time administering a dose of some good physic. 3. Take garden parsley, make it into a tea and let the patient drink freely of it. 4. Take the scales that will fall around the blacksmith's anvil, powder them fine, and put them in sweetened rum. Shake when you take them, and give a teaspoonful three times a day.

Scalding of the Urine.—Equal parts of the oil of red cedar, and the oil of spearmint.

Urinary Obstructions.—Steep pumpkin seeds in gin, and drink about three glasses a day; or, administer half a drachm uva ursi every morning, and a dose of spearmint.

Free Passage of Urine.—The leaves of the currant bush made into a tea, and taken as a common drink.

Venereal Complaints.—Equal parts of the oil of red cedar, combined with sarsaparilla, yellow dock and burdock made into a syrup; add to a pint of this syrup an ounce of gum guiaicum. Dose, from a tablespoonful to a wine-glass, as best you can bear.

How to Cure Sore Throat.—"One who has tried it" communicates the following sensible item about curing sore throat: Let each one of your half million readers buy at any drug store one ounce of camphorated oil and five cents' worth of chloride of potash. Whenever any soreness appears in the throat, put the potash in half a tumbler of water, and with it gargle the throat thoroughly; then rub the neck thoroughly with the camphorated oil at night before going to bed, and also pin around the throat a small strip of woolen flannel. This is a simple, cheap and sure remedy.

HOUSEHOLD RECIPES

MISCELLANEOUS.

Axle Grease.—1. Water, 1 gallon; soda, ⅓ pound; palm oil, 10 pounds. Mix by heat, and stir till nearly cold.

2. Water, rape oil, of each 1 gallon; soda, ⅓ pound; palm oil, ¼ pound.

3. Water, 1 gallon; tallow, 3 pounds; palm oil, 6 pounds; soda, ½ pound. Heat to 210 deg. Fahrenheit and stir until cool.

4. Tallow, 8 pounds; palm oil, 10 pounds; plumbago, 1 pound. Makes a good lubricator for wagon axles.

How to Shell Beans Easy.—Pour upon the pods a quantity of scalding water, and the beans will slip very easily from the pod. By pouring scalding water on apples the skin may be easily slipped off, and much labor saved.

How to Clean Bed-Ticks.—Apply Poland starch, by rubbing it on thick with a cloth. Place it in the sun. When dry, rub it if necessary. The soiled part will be clean as new.

How to Wash Carpets.—Shake and beat it well; lay it upon the floor and tack it firmly; then with a clean flannel wash it over with a quart of bullock's gall mixed with three quarts of soft, cold water, and rub it off with a clean flannel or house-cloth. Any particular dirty spot should be rubbed with pure gall.

How to Clean Carpets.—Before proceeding to sweep a carpet a few handfuls of waste tea-leaves should be sprinkled over it. A stiff hair broom or brush should be employed, unless the carpet is very dirty, when a whisk or carpet-broom should be used, first followed by another made of hair, to take off the loose dust. The frequent use of a stiff carpet-broom soon wears off the beauty of the best carpet. An ordinary clothes brush is best adapted for superior carpets. When carpets are very dirty they should be cleaned by shaking and beating.

Beat it well with a stick in the usual manner until all the dust is removed, then take out the stains, if any, with lemon or sorrel-juice. When thoroughly dry rub it all over with the crumb of a hot wheaten loaf, and if the weather is very fine, let hang out in the open air for a night or two. This treatment will revive the colors, and make the carpet appear equal to new.

How to Remove Spots on Carpets.—A few drops of carbonate of ammonia, and a small quantity of warm rain water, will prove a safe and easy antacid, etc., and will change, if carefully applied, discolored spots upon carpets, and indeed, all spots, whether produced by acids or alkalies. If one has the misfortune to have a carpet injured by whitewash, this will immediately restore it.

How to Remove Ink Spots on Carpets.—As soon as the ink has been spilled, take up as much as you can with a sponge, and then pour on cold water repeatedly, still taking up the liquid; next rub the place with a little wet oxalic acid or salt of sorrel, and wash it off immediately with cold water, and then rub on some hartshorn.

Cleaning and Scouring of Cloth.—The common method of cleaning cloth is by beating and brushing, unless when very dirty, when it undergoes the operation of scouring. This is best done on the small scale, as for articles of wearing apparel, etc., by dissolving a little curd soap in water, and after mixing it with a little ox-gall, to touch over all the spots of grease, dirt. etc., with it, and to rub them well with a stiff brush, until they are removed, after which the article may be well rubbed all over with a brush or sponge dipped into some warm water, to which the previous mixture and a little more ox-gall has been added. When this has been properly done, it only remains to thoroughly rinse the article in clean water until the latter passes off uncolored, when it must be hung up to dry. For dark colored cloths the common practice is to add some Fuller's-earth to the mixture of soap and gall. When nearly dry the nap should be laid right and the article carefully pressed, after which a brush, moistened with a drop or two of olive oil, is passed several times over it, which will give it a superior finish.

Cloth may also be cleaned in the dry way, as follows: First remove the spots, as above, and when the parts have dried, strew clean, damp sand over it, and beat it in with a brush, after which brush the article with a hard brush when the sand will readily come out, and bring the dirt with it. Black cloth which is very rusty should receive a coat of reviver after drying, and be hung up until the next day, when it may be pressed and finished off as before. Scarlet cloth requires considerable caution. After being thoroughly rinsed, it should be repeatedly passed through cold spring water, to which a tablespoonful or two of solution of tin has been added. If much faded, it should be dipped in a scarlet dye-bath. Buff cloth is generally cleansed by covering it with a paste made with pipe-clay and water, which, when dry, is rubbed and brushed off.

Renovation of Cloth.—The article undergoes the process of scouring before described, and, after being well rinsed and drained, it is put on a board, and the threadbare parts rubbed with a half-worn hatter's card, filled with flocks, or with a teazle or a prickly thistle, until a nap is raised. It is next hung up to dry, the nap laid the right way with a hard brush, and finished as before. When the cloth is much faded, it is usual to give it a dip, as it is called, or to pass it through a dye-bath, to freshen up the color.

How to Revive the Color of Black Cloth.—If a coat, clean it well, then boil from two to four ounces of logwood in your copper, or boiler, for half an hour; dip your coat in warm water, and squeeze it as dry as you can; then put it into the copper and boil it for half an hour. Take it out, and add a piece of green copperas, about the size of a horse-bean; boil it another half hour, then draw it, and hang it in the air for an hour or two; take it down, rinse it in two or three cold waters; dry it, and let it be

well brushed with a soft brush, over which a drop or two of the oil of olives has been rubbed, then stroke your coat regularly over.

How to Restore Crape.—Skimmed milk and water, with a little bit of glue in it, made scalding hot, is excellent to restore rusty Italian crape. If clapped and pulled dry like muslin, it will look as good as new; or, brush the veil till all the dust is removed, then fold it lengthwise, and roll it smoothly and tightly on a roller. Steam it till it is thoroughly dampened, and dry on the roller.

How to Cleanse Feather Beds.—When feather beds become soiled and heavy they may be made clean and light by being treated in the following manner: Rub them over with a stiff brush, dipped in hot soap-suds. When clean lay them on a shed, or any other clean place where the rain will fall on them. When thoroughly soaked let them dry in a hot sun for six or seven successive days, shaking them up well and turning them over each day. They should be covered over with a thick cloth during the night; if exposed to the night air they will become damp and mildew. This way of washing the bed-ticking and feathers makes them very fresh and light, and is much easier than the old-fashioned way of emptying the beds and washing the feathers separately, while it answers quite as well. Care must be taken to dry the bed perfectly before sleeping on it. Hair mattresses that have become hard and dirty can be made nearly as good as new by ripping them, washing the ticking, and picking the hair free from bunches and keeping it in a dry, airy place several days. Whenever the ticking gets dry fill it lightly with the hair, and tack it together.

How to Cut Up and Cure Pork.—Have the hog laid on his back on a stout, clean bench; cut off the head close to the base. If the hog is large, there will come off a considerable collar, between head and shoulders, which, pickled or dried, is useful for cooking with vegetables. Separate the jowl from the face at the natural joint; open the skull lengthwise and take out the brains, esteemed a luxury. Then with a sharp knife remove the back-bone the whole length, then the long strip of fat underlying it, leaving about one inch of fat covering the spinal column.

The leaf lard, if not before taken out for the housewife's convenience, is removed, as is also the tenderloin—a fishy-shaped piece of flesh—often used for sausage, but which makes delicious steak. The middling or sides are now cut out, leaving the shoulders square-shaped and the hams pointed, or they may be rounded to your taste. The spare-ribs are usually wholly removed from the sides, with but little meat adhering. It is the sides of small, young hogs cured as hams that bear the name of breakfast bacon. The sausage meat comes chiefly in strips from the back-bone, part of which may also be used as steak. The lean trimmings from about the joints are used for sausage, the fat scraps rendered up with the backbone lard.

The thick part of the backbone that lies between the shoulders, called griskin or chine, is separated from the tapering, bony part, called backbone by way of distinction, and used as flesh. The chines are smoked with jowls, and and used in late winter or spring.

When your meat is to be pickled it should be dusted lightly with saltpetre sprinkled with salt, and allowed to drain twenty-four hours; then plunge it into pickle, and keep under with a weight. It is good policy to pickle a portion of the sides. They, after soaking, are sweeter to cook with vegetables, and the grease fried from them is much more useful than that of smoked meat.

If your meat is to be dry salted, allow one teaspoonful of pulverized saltpetre to one gallon of salt, and keep the mixture warm beside you. Put on a hog's ear as a mitten, and rub each piece of meat thoroughly. Then pack skin side down, ham upon ham, side upon side, strewing on salt abundantly. It is best to put large and small pieces in different boxes for the convenience of getting at them to hang up at the different times they will come into readiness. The weather has so much to do with the time that meat requires to take salt that no particular time can be specified for leaving it in.

The best test is to try a medium-sized ham; if salt enough, all similar and smaller pieces are surely ready, and it is well to remember that the saltness increases in drying.

Ribs and steaks should be kept in a cold, dark place, without salting, until ready for use. If you have many, or the weather is warm, they keep better in pickle than dry salt. Many persons turn and rub their meat frequently. We have never practiced this, and have never lost any.

When the meat is ready for smoking, dip the hocks of the joints in ground black pepper and dust the raw surface thickly with it. Sacks, after this treatment, may be used for double security, and I think bacon high and dry is sweeter than packed in any substance. For sugar-cured hams we append the best recipe we have ever used, though troublesome.

English Recipe for Sugar-Curing Hams.—So soon as the meat comes from the butcher's hand rub it thoroughly with the salt. Repeat this four days, keeping the meat where it can drain. The fourth day rub it with saltpetre and a handful of common salt, allowing one pound of saltpetre to seventy pounds of meat. Now mix one pound of brown sugar and one of molasses, rub over the ham every day for a fortnight, and then smoke with hickory chips or cobs. Hams should be hung highest in meat-houses, because there they are less liable to the attacks of insects, for insects do not so much infest high places—unlike human pests.

Pickle.—Make eight gallons of brine strong enough to float an egg; add two pounds of brown sugar or a quart of molasses, and four ounces of saltpetre; boil and skim clean, and pour cold on your meat. Meat intended for smoking should remain in pickle about four weeks. This pickle can be boiled over, and with a fresh cup of sugar and salt used all summer. Some persons use as much soda as saltpetre. It will correct acidity, but we think impairs the meat.

Washing Preparation.—Take a ¼ of a pound of soap, a ¼ of a pound of soda, and a ¼ of a pound of quicklime. Cut up the soap and dissolve it in 1 quart of boiling water; pour 1 quart of boiling water over the soda, and 3 quarts of boiling water upon the quicklime. The lime must be quick and fresh; if it is good it will bubble up on pouring the hot water upon it. Each must be prepared in separate vessels. The lime must settle so as to leave the water on the top perfectly clear; then strain it carefully (not disturbing the settlings) into the washboiler with the soda and soap; let it scald long enough to dissolve the soap, then add 6 gallons of soap water. The clothes must be put to soak over night, after rubbing soap upon the dirtiest parts of them. After having the above in readiness, wring out the clothes which have been put in soak, put them on to boil, and let each lot boil half an hour; the same water will answer for the whole washing. After boiling each lot half an hour drain them from the boiling water put them in a tub and pour upon them two or three pailsful of clear, hot water; after this they will want very little rubbing; then rinse through two waters, blueing the last. When dried they will be a beautiful white. After washing the cleanest part of the white clothes, take two pails of the suds in which they have been washed, put it over the fire and scald, and this will wash all the flannels and colored clothes without any extra soap. The white flannels, after being well washed in the suds, will require to be scalded by turning on a teakettle of boiling water.

HOW TO DESTROY HOUSEHOLD PESTS

How to Destroy Ants.—Ants that frequent houses or gardens may be destroyed by taking flower of brimstone half a pound and potash four ounces; set them in an iron or earthen pan over the fire till dissolved and united; afterward beat them to a powder, and infuse a little of this powder in water; and wherever you sprinkle it the ants will die or fly the place.

How to Destroy Black Ants.—A few leaves of green wormwood, scattered among the haunts of these troublesome insects, is said to be effectual in dislodging them.

How to Destroy Red Ants.—The best way to get rid of ants, is to set a quantity of cracked walnuts or shell-barks on plates, and put them in the closet or places where the ants congregate. They are very fond of these, and will collect on them in myriads. When they have collected on them make a general *auto-da-fe,* by turning nuts and ants together into the fire, and then replenish the plates with fresh nuts. After they have become so thinned off as to cease collecting on plates, powder some camphor and put in the holes and crevices, whereupon the remainder of them will speedily depart. It may help the process of getting them to assemble on shell-barks, to remove all edibles out of their way for the time.

How to Destroy Black Bees.—Place two or three shallow vessels—the larger kind of flower-pot saucers will do—half filled with water, on the floors where they assemble, with strips of cardboard running from the edge of the vessel to the floor, at a gentle inclination; these the unwelcome guests will eagerly ascend, and so find a watery grave.

How to Destroy Bed-Bugs.—1. When they have made a lodgement in the wall, fill all the apertures with a mixture of soft soap and Scotch snuff. Take the bedstead to pieces, and treat that in the same way. 2. A strong decoction of red pepper applied to bedsteads will either kill the bugs or drive them away. 3. Put the bedstead into a close room and set fire to the following composition, placed in an iron pot upon the hearth, having previously closed up the chimney, then shut the door, let them remain a day: Sulphur nine parts; saltpetre, powdered, one part. Mix. Be sure to open the door of the room five or six hours before you venture to go into it a second time. 4. Rub the bedstead well with lampoil; this alone is good, but to make it more effectual, get ten cents worth of quicksilver and add to it. Put it into all the cracks around the bed, and they will soon disappear. The bedsteads should first be scalded and wiped dry, then put on with a feather. 5. Corrosive sublimate, one ounce; muriatic acid, two ounces; water, four ounces; dissolve, then add turpentine, one pint; decoction of tobacco, one pint. Mix. For the decoction of tobacco boil one ounce of tobacco in a ½pint of water. The mixture must be applied with a paint brush. This wash is deadly poison. 6. Rub the bedsteads in the joints with equal parts of spirits of turpentine and kerosene oil, and the cracks of the surbase in rooms where there are many. Filling up all the cracks with hard soap is an excellent remedy.

March and April are the months when bedsteads should be examined to kill all the eggs. 7. Mix together two ounces spirits of turpentine, one ounce corrosive sublimate, and one pint alcohol. 8. Distilled vinegar, or diluted good vinegar, a pint; camphor one-half ounce; dissolve. 9. White arsenic, two ounces; lard, thirteen ounces; corrosive sublimate, one-fourth ounce; venetian red, one-fourth ounce. (Deadly poison.) 10. Strong mercurial ointment, one ounce; soft soap one ounce; oil of turpentine, a pint. 11. Gasoline and coaloil are both excellent adjuncts, with cleanliness, in ridding a bed or house of these pests.

How to Destroy Caterpillars.—Boil together a quantity of rue, wormwood, and any cheap tobacco (equal parts) in common water. The liquid should be very strong. Sprinkle it on the leaves and young branches every morning and evening during the time the fruit is ripening.

How to Destroy Cockroaches and Beetles.—1. Strew the roots of black hellebore, at night, in the places infested by these vermin, and they will be found in the morning dead or dying. Black hellebore grows in marshy grounds, and may be had at the herb shops. 2. Put about a quart of water sweetened with molasses in a tin wash basin or smooth glazed china bowl. Set it at evening in a place frequented by the bugs. Around the basin put an old piece of carpet that the bugs can have easy access to the top. They will go down in the water, and stay till you come. 3. Take pulverized borax, 4 parts, flour 1 part, mix intimately and distribute the mixture in cupboards which are frequented by the roaches, or blow it, by means of a bellows, into the holes or cracks that are infested by them. 4. By scattering a handful of fresh cucumber parings about the house. 5. Take carbonic acid and powdered camphor in equal parts; put them in a bottle; they will become fluid. With a painter's brush of the size called a sash-tool, put the mixture on the cracks or places where the roaches hide; they will come out at once. Then kill. 6. Mix up a quantity of fresh burned plaster of paris (gypsum, such as is used for making molds and ornaments), with wheat flour and a little sugar, and distribute on shallow plates and box boards, and place in the corners of the kitchen and pantry, where they frequent. In the darkness they will feast themselves on it. Whether it interferes with their digestion or not, is difficult to ascertain, but after three or four nights renewal of the preparation, no cockroaches will be found on the premises.

How to Destroy Crickets.—Sprinkle a little quicklime near to the cracks through which they enter the room. The lime may be laid down overnight, and swept away in the morning. In a few days they will most likely all be destroyed. But care must be taken that the children do not meddle with the lime, as a very small portion of it, getting into the eye, would prove exceedingly hurtful. In case of such an accident the best thing to do would be to wash the eye with vinegar and water.

How to get Rid of Fleas.—Much of the largest number of fleas are brought into our family circles by pet dogs and cats. The oil of pennyroyal will drive these insects off; but a cheaper method, where the herb flourishes, is to throw your cats and dogs into a decoction of it once a week. When the herb cannot be got, the oil can be procured. In this case, saturate strings with it and tie them around the necks of the dogs and cats. These applications should be repeated every twelve or fifteen days. Mint,

freshly cut, and hung round a bedstead, or on the furniture, will prevent annoyance from bed insects; a few drops of essential oil of lavender will be more efficacious.

How to Destroy Flies.—1. Take an infusion of quassia, one pint; brown sugar, four ounces, ground pepper, two ounces. To be well mixed together, and put in small shallow dishes where required. 2. Black pepper (powdered), one drachm; brown sugar, one drachm; milk or cream, two drachms. Mix, and place it on a plate or saucer where the flies are most troublesome. 3. Pour a little simple oxymel (an article to be obtained at the druggists), into a common tumbler glass, and place in the glass a piece of cap paper, made into the shape of the upper part of a funnel, with a hole at the bottom to admit the flies. Attracted by the smell, they readily enter the trap in swarms, and by the thousands soon collected prove that they have not the wit or the disposition to return. 4. Take some jars, mugs, or tumblers, fill them half full with soapy water; cover them as jam-pots are covered, with a piece of paper, either tied down or tucked under the rim. Let this paper be rubbed inside with wet sugar, molasses, honey, or jam, or any thing sweet; cut a small hole in the center, large enough for a fly to enter. The flies settle on the top, attracted by the smell of the bait; they then crawl through the hole, to feed upon the sweets beneath. Meanwhile the warmth of the weather causes the soapy water to ferment, and produces a gas which overpowers the flies, and they drop down into the vessel. Thousands may be destroyed this way, and the traps last a long time.

Fly Paper.—Melt resin, and add thereto while soft, sufficient sweet oil, lard, or lamp oil to make it, when cold about the consistency of honey. Spread on writing paper, and place in a convenient spot. It will soon be filled with ants, flies, and other vermin.

How to Expel Insects.—All insects dread pennyroyal; the smell of it destroys some, and drives others away. At the time that fresh pennyroyal cannot be gathered, get oil of pennyroyal; pour some into a saucer, and steep in it small pieces of wadding or raw cotton, and place them in corners, closet-shelves, bureau drawers, boxes, etc., and the cockroaches, ants, or other insects will soon disappear. It is also well to place some between the mattresses, and around the bed. It is also a splendid thing for brushing off that terrible little insect, the seed tick.

How to Destroy Mice.—1. Use tartar emetic mingled with some favorite food. The mice will leave the premises.

2. Take one part calomel, five parts of wheat flour, one part sugar, and one-tenth of a part of ultramarine. Mix together in a fine powder and place it in a dish. This is a most efficient poison for mice.

3. Any one desirous of keeping seeds from the depredations of mice can do so by mixing pieces of camphor gum in with the seeds. Camphor placed in drawers or trunks will prevent mice from doing them injury. The little animal objects to the odor and keeps a good distance from it. He will seek food elsewhere.

4. Gather all kinds of mint and scatter about your shelves, and they will forsake the premises.

How to Drive Away Mosquitoes.—1. A camphor bag hung up in an open casement will prove an effectual barrier to their entrance. Camphorated spirits applied as perfume to the face and hands will prove an effectual preventive; but when bitten by them, aromatic vinegar is the best antidote.

2. A small amount of oil of pennyroyal sprinkled around the room will drive away the mosquitoes. This is an excellent recipe.

3. Take of gum camphor a piece about half the size of an egg, and evaporate it by placing it in a tin vessel and holding it over a lamp or candle, taking care that it does not ignite. The smoke will soon fill the room and expel the mosquitoes.

How to Preserve Clothing from Moths.—1. Procure shavings of cedar wood and enclose in muslin bags, which should be distributed freely among clothes. 2. Procure shavings of camphor wood, and enclose in bags. 3. Sprinkle pimento (allspice) berries among the clothes. 4. Sprinkle the clothes with the seeds of the musk plant. 5. An ounce of gum camphor and one of the powdered shell of red pepper are macerated in eight ounces of strong alcohol for several days, then strained. With this tincture the furs or cloths are sprinkled over, and rolled up in sheets. 6. Carefully shake and brush woolens early in the spring, so as to be certain that no eggs are in them; then sew them up in cotton or linen wrappers, putting a piece of camphor gum, tied up in a bit of muslin, into each bundle, or into the chests and closets where the articles are to lie. No moth will approach while the smell of the camphor continues. When the gum is evaporated, it must be renewed. Enclose them in a moth-proof box with camphor, no matter whether made of white paper or white pine, before any eggs are laid on them by early spring moths. The notion of having a trunk made of some particular kind of wood for this purpose, is nonsense. Furs or woolens, put away in spring time, before moth eggs are laid, into boxes, trunks, drawers, or closets even, where moths cannot enter, will be safe from the ravages of moth-worms, provided none were in them that were laid late in the autumn, for they are not of spontaneous production.

How to Kill Moths in Carpets.—Wring a coarse crash towel out of clear water, spread it smoothly on the carpet, iron it dry with a good hot iron, repeating the operation on all parts of the carpet suspected of being infected with moths. No need to press hard, and neither the pile nor color of the carpet will be injured, and the moths will be destroyed by the heat and steam.

How to Destroy Rats.—1. When a house is invested with rats which refuse to be caught by cheese and other baits, a few drops of the highly-scented oil of rhodium poured on the bottom of the cage will be an attraction which they cannot refuse. 2. Place on the floor near where their holes are supposed to be a thin layer of moist caustic potash. When the rats travel on this, it will cause their feet to become sore, which they lick, and their tongues become likewise sore. The consequence is, that they shun this locality, and seem to inform all the neighboring rats about it, and the result is that they soon abandon a house that has such mean floors. 3. Cut some corks as thin as wafers, and fry, roast, or stew them in grease, and place the same in their track; or a dried sponge fried or dipped in molasses or honey, with a small quantity of bird lime or oil of rhodium, will fasten to their fur and cause them to depart. 4. If a live rat can be caught and smeared over with tar or train oil, and afterwards allowed to escape in the holes of other rats, he will cause all soon to take their departure. 5. If a live rat be caught, and a small bell be fastened around his neck, and allowed to escape, all of his brother rats as well as himself will very soon go to some other neighbor's house. 6. Take a pan, about twelve inches deep, and half fill it with water; then sprinkle some bran on the water and set the pan in a place where the rats most frequent. In the morning you will find several rats in the pan. 7. Flour, three parts; sugar, one-half part; sulphur, two parts, and phosphorus, two parts. Smear on meat, and place near where the rats are most troublesome. 8. Squills are an excellent poison for rats. The powder should be mixed with some fatty substance, and spread upon slices of bread. The pulp of

onions is also very good. Rats are very fond of either. 9. Take two ounces of carbonate of barytes, and mix with one pound of suet or tallow, place a portion of this within their holes and about their haunts. It is greedily eaten, produces great thirst, and death ensues after drinking. This is a very effectual poison, because it is both tasteless and odorless. 10. Take one ounce of finely powdered arsenic, one ounce of lard; mix these into a paste with meal, put it about the haunts of rats. They will eat of it greedily. 11. Make a paste of one ounce of flour, one-half gill of water, one drachm of phosphorus, and one ounce of flour. Or, one ounce of flour, two ounces of powdered cheese crumbs, and one-half drachm of phosphorus; add to each of these mixtures a few drops of the oil of rhodium, and spread this on thin pieces of bread like butter; the rats will eat of this greedily, and it is a sure poison. 12. Mix some ground plaster of paris with some sugar and Indian meal. Set it about on plates, and leave beside each plate a saucer of water. When the rats have eaten the mixture they will drink the water and die. To attract them toward it, you may sprinkle on the edges of the plates a little of the oil of rhodium. Another method of getting rid of rats is, to strew pounded potash on their holes. The potash gets into their coats and irritates the skin, and the rats desert the place. 13. The Dutch method: this is said to be used successfully in Holland; we have, however, never tried it. A number of rats are left together to themselves in a very large trap or cage, with no food whatever; their craving hunger will, at last, cause them to fight and the weakest will be eaten by the others; after a short time the fight is renewed, and the next weakest is the victim, and so it goes on till one strong rat is left. When this one has eaten the last remains of any of the others, it is set loose; the animal has now acquired such a taste for rat-flesh that he is the terror of ratdom, going round seeking what rat he may devour. In an incredibly short time the premises are abandomed by all other rats, which will not come back before the cannibal rat has left or has died. 14. Catch a rat and smear him over with a mixture of phosphorus and lard, and then let him loose. The house will soon be emptied of these pests.

Vermin, in Water.—Go to the river or pond, and with a small net (a piece of old mosquito bar will do) collect a dozen or more of the small fishes known as minnows, and put them in your cistern, and in a short time you will have clear water, the wiggle-tails and reddish-colored bugs or lice being gobbled up by the fishes.

ACCIDENTS AND INJURIES

..AND HOW TO MEET THEM..

As accidents are constantly liable to occur, the importance of knowing how best to meet the various emergencies that may arise can hardly be over-estimated. In all cases, and under all circumstances, the best help to assist a party in this trying moment is *presence of mind.*

Harvest Bug Bites.—The best remedy is the use of benzine, which immediately kills the insect. A small drop of tincture of iodine has the same effect.

Bites and Stings of Insects.—Such as bees, wasps, hornets, etc., although generally painful, and ofttimes causing much disturbance, yet are rarely attended with fatal results. The pain and swelling may generally be promptly arrested by bathing freely with a strong solution of equal parts of common salt and baking soda, in warm water; or by the application of spirits of hartshorn; or of volatile liniment (one part of spirits of hartshorn and two of olive oil). In the absence of the other articles, warm oil may be used; or, if this is not at hand, apply a paste made from fresh clay-earth. If the sting of the insect is left in the wound, as is frequently the case, it should always be extracted. If there is faintness, give some stimulant; as, a tablespoonful or two of brandy and water, or brandy and ammonia.

Mad Dog Bites.—1. Take immediately warm vinegar or tepid water; wash the wound clean therewith and then dry it; pour upon the wound, then, ten or twelve drops of muriatic acid. Mineral acids destroy the poison of the saliva, by which means the evil effects of the latter are neutralized. 2. Many think that the only sure preventive of evil following the bite of a rabid dog is to suck the wound immediately, before the poison has had time to circulate with the blood. If the person bit cannot get to the wound to suck it, he must persuade or pay another to do it for him. There is no fear of any harm following this, for the poison entering by the stomach cannot hurt a person. A spoonful of the poison might be swallowed with impunity, but the person who sucks the place should have no wound on the lip or tongue, or it might be dangerous. The precaution alluded to is a most important one, and should never be omitted prior to an excision and the application of lunar caustic in every part, especially the interior and deep-seated portions. No injury need be anticipated if this treatment is adopted promptly and effectively. The poison of hydrophobia remains latent on an average six weeks; the part heals over, but there is a pimple or wound, more or less irritable; it then becomes painful; and the germ, whatever it is, ripe for dissemination into the system, and then all hope is gone. Nevertheless, between the time of the bite and the activity of the wound previous to dissemination, the caustic of nitrate of silver is a sure preventive; after that it is as useless as all the other means. The best mode of application of the nitrate of silver is by introducing it solidly into the wound.

Serpents Bites.—The poison inserted by the stings and bites of many venomous reptiles is so rapidly absorbed, and of so fatal a description, as frequently to occasion death before any remedy or antidote can be applied; and they are rendered yet more dangerous from the fact that these wounds are inflicted in parts of the country and world where precautionary measures are seldom thought of, and generally at times when people are least prepared to meet them. 1. In absence of any remedies, the first best plan to adopt on being bitten by any of the poisonous snakes is to do as recommended above in Mad Dog Bites—viz., to wash off the place immediately; if possible get the mouth to the spot, and forcibly suck out all the poison, first applying a ligature above the wound as tightly as can be borne. 2. A remedy promulgated by the Smithsonian Institute is

to take 30 grs. iodide potassium, 30 grs. iodine, 1 oz. water, to be applied externally to the wound by saturating lint or batting—the same to be kept moist with the antidote until the cure be effected, which will be in one hour, and sometimes instantly. 3. An Australian physician has tried and recommends carbolic acid, diluted and administered internally every few minutes until recovery is certain. 4. Another Australian physician, Professor Halford, of Melbourne University, has discovered that if a proper amount of dilute ammonia be injected into the circulation of a patient suffering from snake-bite, the curative effect is usually sudden and startling, so that, in many cases, men have thus been brought back, as it were, by magic, from the very shadow of death.

Bleeding at the Nose.—1. Roll up a piece of paper, and press it under the upper lip. 2. In obstinate cases blow a little gum Arabic up the nostrils through a quill, which will immediately stop the discharge; powdered alum is also good. 3. Pressure by the finger over the small artery near the ala (wing) of the nose, on the side where the blood is flowing, is said to arrest the hemorrhage immediately.

Bleeding from the Lungs.—A New York physician has related a case in which inhalation of very dry persulphate of iron, reduced to a palpable powder, entirely arrested bleeding from the lungs, after all the usual remedies, lead, opium, etc., had failed. A small quantity was administered by drawing into the lungs every hour during part of the night and following day.

Bleeding from the Bowels.—The most common cause of this, when not a complication of some disease, is hemorrhoids or piles. Should serious hemorrhage occur, rest and quiet, and cold water poured slowly over the lower portion of the belly, or cloths wet with cold water, or better, with ice water applied over the belly and thighs, and to the lower end of the bowels, will ordinarily arrest it. In some cases it may be necessary to use injections of cold water, or even put small pieces of ice in the rectum.

Bleeding from the Mouth.—This is generally caused by some injury to the cheeks, gums or tongue, but it sometimes occurs without any direct cause of this kind, and no small alarm may be caused by mistaking it for bleeding from the lungs. Except when an artery of some size is injured, bleeding from the mouth can generally be controlled by gargling and washing the mouth with cold water, salt and water, or alum and water, or some persulphate of iron may be applied to the bleeding surface. Sometimes obstinate or even alarming bleeding may follow the pulling of a tooth. The best remedy for this is to plug the cavity with lint or cotton wet with the solution of persulphate of iron, and apply a compress which may be kept in place by closing the teeth on it.

Bleeding from the Stomach.—*Vomiting blood.*—Hemorrhage from the stomach is seldom so serious as to endanger life; but as it may be a symptom of some dangerous affection, it is always best to consult a physician concerning it. In the meantime, as in all other varieties of hemorrhage, perfect quiet should be preserved. A little salt, or vinegar, or lemon juice, should be taken at intervals, in a small glass of fresh cool water, or ice-water, as ice may be swallowed in small pieces, and cloths wet with ice-water, or pounded ice applied over the stomach.

Bleeding from Varicose Veins.—Serious and even fatal hemorrhage may occur from the bursting of a large varicose or "broken" vein. Should such an accident occur, the bleeding may be best controlled, until proper medical aid can be procured, by a tight bandage; or a "stick tourniquet," remembering that the blood comes toward the heart in the veins, and from it in the arteries. The best thing to prevent the rupture of varicose or broken veins is to support the limb by wearing elastic stockings, or a carefully applied bandage.

Burns and Scalds.—There is no class of accidents that cause such an amount of agony, and none which are followed with more disastrous results.

1. By putting the burned part under cold water, milk, or other bland fluid, instantaneous and perfect relief from all pain will be experienced. On withdrawal, the burn should be perfectly covered with half an inch or more of common wheaten flour, put on with a dredging-box, or in any other way, and allowed to remain until a cure is effected, when the dry, caked flour will fall off, or can be softened with water, disclosing a beautiful, new and healthy skin, in all cases where the burns have been superfical. 2. Dissolve white lead in flaxseed oil to the consistency of milk, and apply over the entire burn or scald every five minutes. It can be applied with a soft feather. This is said to give relief sooner, and to be more permanent in its effects, than any other application. 3. Make a saturated solution of alum (four ounces to a quart of hot water). Dip a cotton cloth in this solution and apply immediately on the burn. As soon as it becomes hot or dry, replace it by another, and continue doing so as often as the cloth dries, which at first will be every few minutes. The pain will immediately cease, and after twenty-four hours of this treatment the burn will be healed; especially if commenced before blisters are formed. The astringent and drying qualities of the alum will entirely prevent their formation. 4. Glycerine, five ounces; white of egg, four ounces; tincture of arnica, three ounces. Mix the glycerine and white of egg thoroughly in a mortar, and gradually add the arnica. Apply freely on linen rags night and morning, washing previously with warm castile soap-suds. 5. Take one drachm of finely powdered alum, and mix thoroughly with the white of two eggs and one teacup of fresh lard; spread on a cloth, and apply to the parts burnt. It gives almost instant relief from pain, and, by excluding the air, prevents excessive inflammatory action. The application should be changed at least once a day. 6. M. Joel, of the Children's Hospital, Lausanne, finds that a tepid bath, containing a couple of pinches of sulphate of iron, gives immediate relief to young children who have been extensively burned. In a case of a child four years old, a bath repeated twice a day—twenty minutes each bath—the suppuration decreased, lost its odor, and the little sufferer was soon convalescent. 7. For severe scalding, carbolic acid has recently been used with marked benefit. It is to be mixed with thirty parts of the ordinary oil of lime water to one part of the acid. Linen rags satured in the carbolic emulsion are to be spread on the scalded parts, and kept moist by frequently smearing with the feather dipped in the liquid. Two advantages of this mode of treatment are, the exclusion of air, and the rapid healing by a natural restorative action without the formation of pus, thus preserving unmarred and personal appearance of the patient—a matter of no small importance to some people.

Choking.—In case of Choking, a violent slap with the open hand between the shoulders of the sufferer will often effect a dislodgment. In case the accident occurs with a child, and the slapping process doos not afford instant relief, it should be grasped by the feet, and placed head downwards, and the slapping between the shoulders renewed; but in case this induced violent suffocative paroxysms it must not be repeated. If the substance, whatever it may be, has entered the windpipe, and the coughing and inverting the body fails to dislodge it, it is probable that nothing but cutting open the windpipe will be of any

avail ; and for this the services of a surgeon should always be procured. If food has stuck in the throat or gullet, the forefinger should be immediately introduced ; and if lodged at the entrance of the gullet, the substance may be reached and extracted, possibly, with the forefinger alone, or may be seized with a pair of pincers, if at hand, or a curling tongs, or anything of the kind. This procedure may be facilitated by directing the person to put the tongue well out, in which position it may be retained by the individual himself, or a bystander by grasping it, covered with a handkerchief or towel. Should this fail, an effort should be made to excite retching or vomiting by passing the finger to the root of the tongue, in hopes that the offending substance may in this way be dislodged ; or it may possibly be effected by suddenly and unexpectedly dashing in the face a basin of cold water, the shock suddenly relaxing the muscular spasm present, and the involuntary gasp at the same time may move it up or down. If this cannot be done, as each instant's delay is of vital importance to a choking man, sieze a fork, a spoon, a penholder, pencil, quill, or anything suitable at hand, and endeavor to push the article down the throat. If it be low down the gullet, and other means fail, its dislodgment may sometimes be effected by dashing cold water on the spine, or vomiting may be induced by an emetic of sulphate of zinc (twenty grains in a couple of tablespoonfuls of warm water), or of common salt and mustard in like manner, or it may be pushed into the stomach by extemporizing a probang, by fastening a small sponge to the end of a stiff slrip of whalebone. If this cannot be done, a surgical operation will be necessary. Fish bones or other sharp substances, when they cannot be removed by the finger or forceps, may sometimes be dislodged by swallowing some pulpy mass, as masticated bread, etc. Irregularly shaped substances, a plate with artificial teeth for instance, can ordinarily be removed only by surgical interference.

Colic.—Use a hot fomentation over the abdomen, and a small quantity of ginger, peppermint or common tea. If not relieved in a few minutes, then give an injection of a quart of warm water with twenty or thirty drops of laudanum, and repeat it if necessary. A half teaspoonful of chloroform, in a tablespoonful of sweetened water, with or without a few drops of spirits of lavender or essence of peppermint, will often give prompt relief.

Convulsions.—In small children convulsions frequently happen from teething, sometimes from worms or from some irritating substance within the stomach or bowels, and sometimes from some affection of the brain.

When a child has convulsions, place it immediately in a warm of hot bath, and sponge its head with cold water. Then apply a hot mustard plaster to the wrists, ankles and soles of the feet, or, in case a plaster cannot be obtained, apply a cloth wrung out of hot mustard water. Allow these to remain until the skin reddens, and use care that the same do not blister. After the fit has subsided, use great care against its return by attention to the cause which gave rise to it.

Convulsions in adults must be treated in accordance with the manner which gave rise to them. During the attack great care should be taken that the party does not injure himself, and the best preventive is a cork or a soft piece of wood, or other suitable substance, placed between the teeth to prevent biting the tongue and cheeks: tight clothing must be removed or loosened ; mustard poultices should be applied to the extremities and over the abdomen ; abundance of fresh air should be secured by opening windows and doors, and preventing unnecessary crowding of persons around ; cold water may be dashed on the face and chest ; and if there be plethora, with full bounding pulse, with evidence of cerebral or other internal congestion, the abstraction of a few ounces of blood may be beneficial.

Cramp.—Spasmodic or involuntary contractions of the muscles generally of the extremities, accompained with great pain. The muscles of the legs and feet are the most commonly affected with cramp, especially after great exertion. The best treatment is immediately to stand upright, and to well rub the part with the hand. The application of strong stimulants, as spirits of ammonia, or of anodines, as opiate liniments, has been recommended. When cramp occurs in the stomach, a teaspoonful of sal volatile in water, or a dram glassful of good brandy, should be swallowed immediately. When cramp comes on during cold bathing, the limb should be thrown out as suddenly and violently as possible, which will generally remove it, care being also taken not to become flurried nor frightened, as presence of mind is very essential to personal safety on such an occasion. A common cause of cramp is indigestion, and the use of acescent liquors; these should be avoided.

Cuts.—In case the flow of blood is trifling, stop the bleeding by bringing the edges of the wound together. If the flow of blood is great, of a bright vermillion color, and flows in spurts or with a jerk, an artery is severed, and at once should pressure be made on the parts by the finger (between the cut and the heart), until a compress is arranged by a tight ligature above the wounded part. Then the finger may be taken off, and if the blood still flows, tighten the handkerchief or other article that forms the ligature, until it ceases. If at this point the attendance of a physician or surgeon cannot be secured, take strong silk thread, or wax together three or four threads, and cut them into lengths of about a foot long. Wash the parts with warm water, and then with a sharp hook or small pair of pincers in your hand, fix your eye steadfastly upon the wound, and directing the ligature to be slightly released, you will see the mouth of the artery from which the blood springs. At once seize it, draw it out a little, while an assistant passes a ligature round it, and ties it up tight with a double knot. In this way take up in succession every bleeding vessel you can see or get hold of. If the wound is too high up in a limb to apply the ligature, do not lose your presence of mind. If it is the thigh, press firmly on the groin; if in the arm, with the hand end or ring of a common door-key make pressure above the collar-bone, and about its middle, against its first rib, which lies under it. The pressure should be continued until assistance is procured and the vessel tied up. If the wound is on the face, or other place where pressure cannot effectually be made, place a piece of ice directly over the wound, allowing it to remain there until the blood coagulates, when it may be removed, and a compress and bandage be applied.

After the bleeding is arrested the surrounding blood should be cleared away, as well as any extraneous matter; then bring the sides of the wound into contact throughout the whole depth, in order that they may grow together as quickly as possible, retaining them in their position by strips of adhesive plaster. If the wound be deep and extensive, the wound itself and the adjacent parts must be supported by proper bandages. The position of the patient should be such as will relax the skin and muscles of the wounded part. Rest, low and unstimulating diet, will complete the requirements necessary to a speedy recovery.

How to Distinguish Death.—As many instances occur of parties being buried alive, they being to all appearance dead, the great importance of knowing how to distinguish real from imaginary death need not be explained. The appearances which mostly accompany death, are an entire

stoppage of breathing, of the heart's action; the eyelids are partly closed, the eyes glassy, and the pupils usually dilated; the jaws are clenched, the fingers partially contracted, and the lips and nostrils more or less covered with frothy mucus, with increasing pallor and coldness of surface, and the muscles soon become rigid and the limbs fixed in their position. But as these same conditions may also exist in certain other cases of suspended animation, great care should be observed, whenever there is the least doubt concerning it, to prevent the unnecessary crowding of the room in which the corpse is, or of parties crowding around the body; nor should the body be allowed to remain lying on the back without the tongue being so secured as to prevent the glottis or orifice of the windpipe being closed by it; nor should the face be closely covered; nor rough usage of any kind be allowed. In case there is great doubt, the body should not be allowed to be inclosed in the coffin, and under no circumstances should burial be allowed until there are unmistakable signs of decomposition.

Of the numerous methods proposed as signs for real death, we select the following: 1. So long as breathing continues, the surface of a mirror held to the mouth and nostrils will become dimmed with moisture. 2. If a strong thread or small cord be tied tightly round the finger of a living person, the portion beyond the cord or thread will become red and swollen—if dead, no change is produced. 3. If the hand of a living person is held before a strong light a portion of the margin or edges of the fingers is translucent—if dead, every part of it is opaque. 4. A coal of fire, a piece of hot iron, or the flame of a candle, applied to the skin, if life remains, will blister—if dead it will merely sear. 5. A bright steel needle introduced and allowed to remain for half an hour in living flesh will be still bright—if dead, it will be tarnished by oxydation. 6. A few drops of a solution of atropia (two grains to one-half ounce of water) introduced into the eye, if the person is alive, will cause the pupils to dilate—if dead, no effect will be produced. 7. If the pupil is already dilated, and the person is alive, a few drops of tincture of the calabar bean will cause it to contract—if dead, no effect will be produced.

Dislocations.—These injuries can mostly be easily recognized; 1. By the deformity that the dislocation gives rise to by comparing the alteration in shape with the other side of the body. 2. Loss of some of the regular movements of the joints. 3. In case of dislocation, surgical aid should be procured at once. While waiting the arrival of a physician, the injured portion should be placed in the position most comfortable to the patient, and frequent cold bathing or cloths wrung out of cold water, applied to the parts affected, so as to relieve suffering and prevent inflammation.

Foreign Bodies in Ears.—Great care should be taken in removing foreign bodies from the ear, as serious injury may be inflicted. Most foreign bodies, especially those of small size, can be easily removed by the use of a syringe with warm water, and in most cases no other means should be used. Should the first efforts fail, repeat the operation. A syringe throwing a moderately small and continuous stream is the best adapted for the purpose, and the removal may generally be facilitated by inclining the ear downward while using the syringe. Severe inflammation may be excited, and serious injury done, by rash attempts to seize a foreign body in the ear, with a forceps or tweezers, or trying to pick it out with a pin or needle, or with an ear scoop. Should it be necessary from any cause to use instruments, great care should be observed, and but very little force exerted. It has lately been recommended, when foreign bodies cannot be removed by syringing the ear, to introduce a small brush or swab of frayed linen or muslin cloth, or a bit of sponge, moistened with a solution of glue, and keep it in contact with the foreign body until the glue adheres, when the body may be easily removed.

Insects in the Ear.—Insects in the ear may be easily killed by pouring oil in the ear, after which remove by syringing. (See foreign bodies in ear.)

To Remove Hardened Ear Wax.—Hardened ear wax may be softened by dropping into the ear some oil or glycerine, and then syringing. (See foreign bodies in ear.)

Foreign Bodies in Eye.—To remove small particles from the eye, unless they have penetrated the globe, or become fixed in the conjunctiva, do as follows:

Grasp the upper lid between the thumb and forefinger, lift it from the eyeball, and having drawn it down as far as possible outside the lower lid, let it slide slowly back to its place, resting upon the lower lid as it goes back; and then wipe the edges of the lids with a soft handkerchief to remove the foreign substance. This may be repeated a number of times, if necessary, without injury. Should this means fail, evert the lids and remove the foreign substance by touching it lightly with the fold of a handkerchief, or with the point of a roll of paper made like a candle-lighter; or, if necessary, with a small pair of forceps. A drop of sweet oil instilled in the eye, while perfectly harmless, provokes a flow of tears that will frequently wash away any light substance.

Bits of metal, sharp pieces of sand, etc., sometimes penetrate the globe of the eye, and, unless removed, may excite so much inflammation as to destroy the eye. They should be removed by a competent surgeon.

Fainting.—Lay the person who has fainted in a current of air, or in such a position that the air from an open window or door will have full play upon the face. Do not allow parties to crowd closely around, but give the sufferer plenty of room. Recovery will take place in a few minutes. The clothes also may be opened, and cold water sprinkled upon the face, hands and chest; and some pungent substance, as smelling salts, camphor, aromatic vinegar, etc., may be applied to the nostrils; and as soon as able to swallow, a little fresh water, or spirits and water, may be given. Persons who faint easily should avoid crowded rooms and places where the air is close.

Fits.—See Convulsions.

Clothing on Fire.—If a woman's clothes catch on fire, let her instantly roll herself over and over on the ground. In case any one be present, let them throw her down and do the like, and then wrap her up in a table-cloth, rug, coat, or the first woolen article that can be found.

Fractures.—As we can only give general rules for treating the various fractures, we would advise any one suffering from such to immediately apply to the nearest surgeon, and not rely upon an inexperienced party.

Frost-Bite.—Place the party suffering in a room without fire, and rub the frozen or frosted parts with snow, or pour ice-water over them until sensation begins to return. As soon as a stinging pain is felt, and a change of color appears, then cease the rubbing, and apply clothes wet with ice-water, and subsequently, if active inflammation follow and suppuration results, a solution of carbolic acid in water, one part to thirty, should be applied. If mortification set in, amputation is generally necessary. Where persons suffer from the constitutional effects of cold, hot stimulants should be given internally, and the body rubbed briskly with the hands and warm flannel.

Poisons, Their Symptoms and Antidotes.—When a person has taken poison, the first thing to do is to compel the patient to vomit, and for that purpose give any emetic that can be most readily and quickly obtained, and which is prompt and energetic, but safe in its action.

For this purpose there is, perhaps, nothing better than a large teaspoonful of ground mustard in a tumblerful of warm water, and it has the advantage of being almost always at hand. If the dry mustard is not to be had, use mixed mustard from the mustard pot. Its operation may generally be facilitated by the addition of a like quantity of common table salt. If the mustard is not at hand, give two or three teaspoonfuls of powdered alum in syrup or molasses, and give freely of warm water to drink ; or give ten to twenty grains of sulphate of zinc (white vitriol), or twenty to thirty grains of ipecac, with one or two grains of tartar emetic, in a large cup of warm water, and repeat every ten minutes until three or four doses are given, unless free vomiting is sooner produced. After vomiting has taken place, large draughts of warm water should be given the patient, so that the vomiting will continue until the poisonous substances have been thoroughly evacuated, and then suitable antidotes should be given. If vomiting cannot be produced, the stomach-pump should be used. When it is known what particular kind of poison has been swallowed, then the proper antidote for that poison should be given, but when this cannot be ascertained, as is often the case, give freely of equal parts of calcined magnesia, pulverized charcoal, and sesquioxide of iron, in sufficient quantity of water. This is a very harmless mixture, and is likely to be of great benefit, as the ingredients, though very simple, are antidotes for the most common and active poisons. In case this mixture cannot be obtained, the stomach should be soothed and protected by the free administration of demulcent, mucilaginous or oleaginous drinks, such as the whites of eggs, milk, mucilage of gum arabic, or slippery elm bark, flaxseed tea, starch, wheat, flour, or arrow-root mixed in water, linseed or olive oil, or melted butter or lard. Subsequently the bowels should be moved by some gentle laxative, as a tablespoonful or two of castor oil, or a teaspoonful of calcined magnesia ; and pain or other evidence of inflammation must be relieved by the administration of a few drops of laudanum, and the repeated application of hot poultices, fomentations and mustard plasters. The following are the names of the articles that may give rise to poisoning, most commonly used, and their antidote :

Mineral Acids—Sulphuric Acid (Oil of Vitriol), Nitric Acid (Aqua Fortis), Muriatic Acid (Spirits of Salts).—Symptoms : Acid, burning taste in the mouth, acute pain in the throat, stomach and bowels; frequent vomiting, generally bloody, mouth and lips excoriated, shriveled, white or yellow; hiccough, copious stools, more or less bloody, with great tenderness in the abdomen; difficult breathing, irregular pulse, excessive thirst, while drink increases the pain and rarely remains in the stomach; frequent but vain efforts to urinate ; cold sweats, altered countenance ; convulsions generally preceding death ; nitric acid causes yellow stains ; sulphuric acid, black ones. Treatment : Mix calcined magnesia in milk or water to the consistence of cream, and give freely to drink a glassful every couple of minutes, if it can be swallowed. Common soap (hard or soft), chalk, whiting, or even mortar from the wall mixed in water, may be given, until magnesia can be obtained. Promote vomiting by tickling the throat, if necessary, and when the poison is got rid of, flaxseed or elm tea, gruel, or other mild drinks. The inflammation which always follows wants good treatment to save the patient's life.

Vegetable Acids—Acetic, Citric, Oxalic, Tartaric.—Symptoms: Intense burning pain of mouth, throat and stomach; vomiting blood which is highly acid, violent purging, collapse, stupor, death.

Oxalic Acid is frequently taken in mistake for Epsom salts, to which in shops it often bears a strong resemblance. Treatment: Give chalk or magnesia in a large quantity of water, or large draughts of lime water. If these are not at hand, scrape the wall or ceiling, and give the scrapings, mixed with water.

Prussic or Hydrocyanic Acid—Laurel Water, Cyanide of Potassium, Bitter Almond Oil, etc.—Symptoms: In large doses almost invariably instantaneously fatal, when not immediately fatal, sudden loss of sense and control of the voluntary muscles; the odor of the poison generally susceptible on the breath. Treatment: Chlorine, in the form of chlorine water, in doses of from one to four fluid drachms, diluted. Weak solution of chloride lime of soda; water of ammonia (spirits of hartshorn) largely diluted may be given, and the vapor of it cautiously inhaled. Cold affusion, and chloroform in half to teaspoonful doses in glycerine or mucilage, repeated every few minutes, until the symptoms are ameliorated. Artificial respiration.

Aconite — Monkshood, Wolfsbane. — Symptoms: Numbness and tingling in the mouth and throat, and afterwards in other portions of the body, with sore throat, pain over the stomach, and vomiting; dimness of vision, dizziness, great prostration, loss of sensibility and delirium. Treatment: An emetic and then brandy in tablespoonful doses, in ice-water, every half hour; spirits of ammonia in half teaspoonful doses in like manner; the cold douche over the head and chest, warmth to the extremities, etc.

Alkalies and their Salts—Concentrated Lye, Woodash Lye, Caustic Potash, Ammonia, Hartshorn.—Symptoms : Caustic, acrid taste, excessive heat in the throat, stomach and intenstines ; vomiting of bloody matter, cold sweats, hiccough, purging of bloody stools.—Treatment: The common vegetable acids. Common vinegar being always at hand, is most frequently used. The fixed oils, as castor, flaxseed, almond and olive oils form soaps with the alkalies and thus also destroy their caustic effect. They should be given in large quantity.

Alcohol, Brandy, and other Spirituous Liquors.—Symptoms : Confusion of thought, inability to walk or stand, dizziness, stupor, highly flushed or pale face, noisy breathing.—Treatment: After emptying the stomach, pour cold water on the head and back of the neck, rub or slap the wrists and palms, and the ankles and soles of the feet, and give strong, hot coffee, or aromatic spirits of hartshorn, in teaspoonful doses in water. The warmth of the body must be sustained.

Antimony, and its Preparations. Tartar Emetic, Antimonial Wine, Kerme's Mineral.—Symptoms : Faintness and nausea, soon followed by painful and continued vomiting, severe diarrhœa, constriction and burning sensation in the throat, cramps, or spasmodic twitchings, with symptoms of nervous derangement, and great prostration of strength, often terminating in death.—Treatment : If vomiting has not been produced, it should be effected by tickling the fauces, and administering copious draughts of warm water. Astringment infusions, such as of gall, oak bark, Peruvian bark, act as antidotes, and should be given promptly. Powdered yellow bark may be used until the infusion is prepared, or very strong green tea should be given. To stop the vomiting, should it continue, blister over the stomach by applying a cloth wet with strong spirits of hartshorn, and then sprinkle on the one-eighth to one-fourth of a grain of morphia.

Arsenic and its Preparations—Ratsbane, Fowler's Solution, etc.—Symptoms : Generally within an hour pain and heat are felt in the stomach, soon followed

by vomiting, with a burning dryness of the throat and great thirst; the matters vomited are generally colored, either green yellow, or brownish, and sometimes bloody. Diarrhœa or dysentery ensues, while the pulse becomes small and rapid, yet irregular. Breathing much oppressed; difficulty in vomiting may occur, while cramps, convulsions, or even paralysis often precede death, which sometimes takes place within five or six hours after arsenic has been taken.—Treatment: Give a prompt emetic, and then hydrate of peroxide of iron (recently prepared) in tablespoonful doses every ten or fifteen minutes until the urgent symptoms are relieved. In the absence of this, or while it is being prepared, give large draughts of new milk and raw eggs, limewater and oil, melted butter, magnesia in a large quantity of water, or even if nothing else is at hand, flour and water, always, however, giving an emetic the first thing, or causing vomiting by tickling the throat with a feather, etc. The inflammation of the stomach which follows must be treated by blisters, hot fomentations, mucilaginous drinks, etc., etc.

Belladonna or Deadly Night Shade.—Symptoms: Dryness of the mouth and throat, great thirst, difficulty of swallowing, nausea, dimness, confusion or loss of vision, great enlargement of the pupils, dizziness, delirium and coma.—Treatment: There is no known antidote. Give a prompt emetic and then reliance must be placed on continual stimulation with brandy, whisky, etc., and to necessary artificial respiration. Opium and its preparations, as morphia, laudanum, etc., are thought by some to counteract the effect of belladonna, and may be given in small and repeated doses, as also strong black coffee and green tea.

Blue Vitriol, or Blue Stone.—See Copperas.

Cantharides (Spanish or Blistering Fly) and Modern Potato Bug.—Symptoms: Sickening odor of the breath, sour taste, with burning heat in the throat, stomach, and bowels; frequent vomiting, often bloody; copious bloody stools, great pain in the stomach, with burning sensation in the bladder and difficulty to urinate, followed with terrible convulsions, delirium and death.—Treatment: Excite vomiting by drinking plentifully of sweet oil or other wholesome oils, sugar and water, milk, or slippery elm tea; give injections of castor oil and starch, or warm milk. The inflammatory symptoms which generally follow must be treated by a medical man. Camphorated oil or camphorated spirits should be rubbed over the bowels, stomach and thighs.

Caustic Potash.—See Alkalies.

Cobalt, or Fly-Powder.—Symptoms: Heat and pain in the throat and stomach, violent retching and vomiting, cold and clammy skin, small and feeble pulse, hurried and difficult breathing, diarrhœa, etc.—Treatment: An emetic, followed by the free administration of milk, eggs, wheat flour and water, and mucilaginous drinks.

Copper—Blue Vitriol, Verdigris or Pickles or Food Cooked in Soul Copper Vessels.—Symptoms: General inflammation of the alimentary canal, suppression of urine; hiccough, a disagreeable metallic taste, vomiting, violent colic, excessive thirst, sense of tightness of the throat, anxiety; faintness, giddiness, and cramps and convulsions generally precede death.—Treatment: Large doses of simple syrup as warm as can be swallowed, until the stomach rejects the amount it contains. The whites of eggs and large quantities of milk. Hydrated peroxide of iron.

Copperas.—See Iron.

Creosote.—Carbolic Acid.—Symptoms: Burning pain, acrid, pungent taste, thirst, vomiting, purging, etc.—Treatment: An emetic, and the free administration of albumen, as the whites of eggs, or in the absence of these, milk, or flour and water.

Corrosive Sublimate.—See Mercury.

Deadly Night-Shade.—See Belladonna.

Fox-Glove, or Digitalis.—Symptoms: Loss of strength, feeble, fluttering pulse, faintness, nausea, and vomiting and stupor; cold perspiration, dilated pupils, sighing, irregular breathing, and sometimes convulsions.—Treatment: After vomiting, give brandy and ammonia in frequently repeated doses, apply warmth to the extremities, and if necessary resort to artificial respiration.

Gases—Carbonic Acid, Chlorine, Cyanogen, Hydrosulphuric Acid, etc.—Symptoms: Great drowsiness, difficult respiration, features swollen, face blue as in strangulation.—Treatment: Artificial respirations, cold douche, frictions with stimulating substances to the surface of the body. Inhalation of steam containing preparations of ammonia. Cupping from nape of neck. Internal use of chloroform.

Green Vitriol.—See Iron.

Hellebore, or Indian Poke.—Symptoms: Violent vomiting and purging, bloody stools, great anxiety, tremors, vertigo, fainting, sinking of the pulse, cold sweets and convulsions.—Treatment: Excite speedy vomiting by large draughts of warm water, molasses and water, tickling the throat with the finger or a feather, and emetics; give oily and mucilaginous drinks, oily purgatives, and clysters, acids, strong coffee, camphor and opium.

Hemlock (Conium).—Symptoms: Dryness of the throat, tremors, dizziness, difficulty of swallowing, prostration and faintness, limbs powerless or paralyzed, pupils dilated, pulse rapid and feeble; insensibility and convulsions sometimes precede death.—Treatment: Empty the stomach and give brandy in tablespoonful doses, with half teaspoonful of spirits of Ammonia, frequently repeated, and if much pain and vomiting, give bromide of ammonium in five-grain doses every half hour. Artificial respiration may be required.

Henbane or Hyoscyamus.—Symptoms: Muscular twitching, inability to articulate plainly, dimness of vision and stupor; later, vomiting and purging, small, intermittent pulse, convulsive movement of the extremities and coma. Treatment: Similar to Opium Poisoning, which see.

Iodine.—Symptoms: Burning pain in throat, lacerating pain in the stomach, fruitless effort to vomit, excessive tenderness of the epigastrium. Treatment: Free emesis, prompt administration of starch, wheat flour, or arrow-root, beat up in water.

Lead.—Acetate of Lead, Sugar of Lead, Dry White Lead, Red Lead, Litharge, or Pickles, Wine, or Vinegar, Sweetened by Lead.—Symptoms: When taken in large doses, a sweet but astringent metallic taste exists, with constriction in the throat, pain in the region of the stomach, painful, obstinate, and frequently bloody vomitings, hiccough, convulsions or spasms, and death. When taken in small but long-continued doses, it produces colic, called painter's colic; great pain, obstinate constipation, and in extreme cases paralytic symptoms, especially wrist-drop, with a blue line along the edge of the gums. Treatment: To counteract the poison, give alum in water, one and a half ounce to a quart; or, better still, Epsom salts or Glauber salts, an ounce of either in a quart of water; or dilute sulphuric acid, a teaspoonful to a quart of water. If a large quantity of sugar of lead has been recently taken, empty the stomach by an emetic of sulphate of zinc (one drachm in a quart of water), giving one-fourth

to commence, and repeating smaller doses until free vomiting is produced; castor oil should be given to clear the bowels, and injections of oil and starch freely administered. If the body is cold, use the warm bath.

Meadow Saffron.—See Belladonna.

Laudanum.—See Opium.

Lunar Caustic.—See Silver.

Lobelia.—Indian Poke.—Symptoms: Excessive vomiting and purging, pains in the bowels, contraction of the pupils, delirium, coma, and convulsions. Treatment: Mustard over the stomach, and brandy and ammonia.

Mercury.—Corrosive Sublimate (bug poisons frequently contain this poison), **Red Precipitate, Chinese or English Vermillion.**—Symptoms: Acrid, metallic taste in the mouth, immediate constriction and burning in the throat, with anxiety and tearing pains in both stomach and bowels, sickness, and vomiting of various colored fluids, and sometimes bloody and profuse diarrhœa, with difficulty and pain in urinating; pulse quick, small and hard; faint sensations, great debility, difficult breathing, cramps, cold sweats, syncope and convulsions. Treatment: If vomiting does not already exist, emetics must be given immediately—albumen of eggs in continuous large doses, and infusion of catechu afterwards, sweet milk, mixtures of flour and water in successive cupfuls, and to check excessive salivation put a half ounce of chlorate of potash in a tumbler of water, and use freely as a gargle, and swallow a tablespoonful every hour or two.

Monkshood.—See Arnica.

Morphine.—See Opium.

Nitrate of Silver (Lunar Caustic.)—Symptoms: Intense pain and vomiting and purging of blood; mucus and shreds of mucus membranes; and if these stand they become dark. Treatment: Give freely of a solution of common salt in water, which decomposes the poison, and afterwards flax-seed or elm bark tea, and after a while a dose of castor oil.

Nux Vomica.—See Strychnine.

Opium and all its Preparations—Morphine, Laudanum, Paregoric, etc.—Symptoms: Giddiness, drowsiness, increasing to stupor, and insensibility; pulse usually, at first, quick and irregular, and breathing hurried, and afterwards pulse slow and feeble, and respiration slow and noisy; the pupils are contracted and the eyes and face congested, and later, as death approaches, the extremities become cold, the surface is covered with cold, clammy perspiration, and the sphincters relax. The effects of opium and its preparations, in poisonous doses, appear in from a half to two hours from its administration. Treatment: Empty the stomach immediately with an emetic or with the stomach pump. Then give very strong coffee without milk; put mustard plasters on the wrist and ankles; use the cold douche to the head and chest, and if the patient is cold and sinking give brandy, or whisky and ammonia. Belladonna is thought by many to counteract the poisonous effects of opium, and may be given in doses of half to a teaspoonful of the tincture, or two grains of the extract, every twenty minutes, until some effect is observed in causing the pupils to expand. Use warmth and friction, and if possible prevent sleep for some hours, for which purpose the patient should be walked about between two persons, and if necessary a bunch of switches may be freely used. Finally, as a last resort, use artificial respiration, and a persistance in it will sometimes be rewarded with success in apparently hopeless cases. Galvanism should also be tried.

Oxalic Acid.—See Acids.

Phosphorus—Found in Lucifer Matches and some Rat Poisons.—Symptoms: Symptoms of irritant poisoning; pain in the stomach and bowels; vomiting; diarrhœa; tenderness and tension of the abdomen. Treatment: An emetic is to be promptly given; copious draughts containing magnesia in suspension; mucilaginous drinks. General treatment for inflammatory symptoms.

Poisonous Fish.—Symptoms: In an hour or two—often in much shorter time—after the fish has been eaten, a weight at the stomach comes on, with slight vertigo and headache; sense of heat about the head and eyes; considerable thirst, and often an eruption of the skin. Treatment: After full vomiting, an active purgative should be given to remove any of the noxious matter from the intestines. Vinegar and water may be drunk after the above remedies have operated, and the body may be sponged with the same. Water made very sweet with sugar, with aromatic spirits of ammonia added, may be drunk freely as a corrective. A solution of cholorate of potash, or of alkali, the latter weak, may be given to obviate the effect of the poison. If spasms ensue after evacuation, laudanum in considerable doses is necessary. If inflammation should occur, combat in the usual way.

Poisonous Mushrooms.—Symptoms: Nausea, heat and pains in the stomach and bowels; vomiting and purging, thirst, convulsions and faintings, pulse small and frequent, dilated pupil and stupor, cold sweats and death.

Treatment: The stomach and bowels are to be cleared by an emetic of ground mustard or sulphate of zinc, followed by frequent doses of Glauber of Epsom salts, and large stimulating clysters. After the poison is evacuated, either may be given with small quantities of brandy and water. But if inflammatory symptoms manifest themselves, such stimuli should be avoided, and these symptoms appropriately treated.

Potash.—See Alkali.

Prussic Acid, Hydrocyanic.—See Acids.

Poison Ivy.—Symptoms. Contact with, and with many persons the near approach to the vine, gives rise to violent erysipelatous inflammation, especially of the face and hands, attended with itching, redness, burning and swelling, with watery blisters.

Treatment: Give saline laxatives, and apply weak lead and laudanum, or limewater and sweet oil, or bathe the parts freely with spirits of nitre. Anointing with oil will prevent poisoning from it.

Saltpetre, Nitrate of Potash.—Symptoms. Only poisonous in large quantities, and then causes nausea, painful vomiting, purging, convulsions, faintness, feeble pulse, cold feet and hands, with tearing pains in stomach and bowels.

Treatment: Treat just as is directed for arsenic, for there is no antidote known, and emptying the stomach and bowels with mild drinks must be relied on.

Savine.—Symptoms: Sharp pains in the bowels, hot skin, rapid pulse, violent vomiting and sometimes purging, with great prostration. Treatment: Mustard and hot fomentations over the stomach and bowels, and ice only allowed in the stomach until the inflammation ceases. If prostration comes on, food and stimulants must be given by injection.

Stramonium, Thorn-apple or Jamestown Weed.—Symptoms: Vertigo, headache, perversion of vision, slight delirium, sense of suffocation, disposition to sleep, bowels relaxed and all secretions augmented. Treatment: Same as Belladonna.

Strychnine and Nux Vomica.—Symptoms: Muscular twitching, constriction of the throat, difficult breathing and oppression of the chest; violent muscular spasms then occur, continuous in character like lock-jaw, with the body

bent backwards, sometimes like a bow. Treatment: Give, if obtainable, one ounce or more of bone charcoal mixed with water, and follow with an active emetic; then give chloroform in teaspoonful doses, in flour and water or glycerine, every few minutes while the spasms last, and afterwards brandy and stimulants, and warmth of the extremities if necessary. Recoveries have followed the free and prompt administration of oils or melted butter or lard. In all cases empty the stomach if possible.

Sulphate of Zinc, White Vitriol.—See Zinc.

Tin—Chloride of Tin, Solution of Tin (Used by Dyers), Oxide of Tin or Putty Powder.—Symptoms: Vomiting, pains in the stomach, anxiety, restlessness, frequent pulse, delirium, etc. Treatment: Empty the stomach, and give whites of eggs in water, milk in large quantities, or flour beaten up in water, with magnesia or chalk.

Tartar Emetic.—See Antimony.

Tobacco. — Symptoms: Vertigo, stupor, fainting, nausea, vomiting, sudden nervous debility, cold sweat, tremors, and at times fatal prostration. Treatment: After the stomach is empty apply mustard to the abdomen and to the extremities, and give strong coffee, with brandy and other stimulants, with warmth to the extremities.

Zinc—Oxide of Zinc, Sulphate of Zinc, White Vitriol, Acetate of Zinc.—Symptoms: Violent vomiting, astringent taste, burning pain in the stomach, pale countenance, cold extremities, dull eyes, fluttering pulse. Death seldom ensues, in consequence of the emetic effect. Treatment: The vomiting may be relieved by copious draughts of warm water. Carbonate of soda, administered in solution, will decompose the sulphate of zinc. Milk and albumen will also act as antidotes. General principles to be observed in the subsequent treatment.

Woorara.—Symptoms: When taken into the stomach it is inert; when absorbed through a wound it causes sudden stupor and insensibility, frothing at the mouth and speedy death. Treatment: Suck the wound immediately, or cut it out and tie a cord around the limb between the wound and the heart. Apply iodine, or iodide of potassium, and give it internally, and try artificial respiration.

Scalds.—See Burns and Scalds.

Sprains.—The portions most frequently implicated are the wrist and ankle; no matter which portion it may be, however, rest and quietness is a very important part of the treatment, and, when possible, in an elevated position. If the wrist is sprained it should be carried in a sling; if the ankle, it should be supported on a couch or stool. Cold lotions (see Bruises) should be freely applied, and irrigation by pouring water from a pitcher or tea-kettle resorted to several times a day to prevent inflammation. Later, frictions with opodeldoc, or with some stimulating liniment, and supporting the parts by pressure made with a flannel roller, or laced stocking when the ankle is involved, will be useful to restore tone; or strips of adhesive plaster properly applied will be useful for the same purpose. Recovery from severe sprains is always tedious. It is an old saying "that a bad sprain is worse than a broken bone."

Stings of Bees and Wasps.—See Bites and Stings.

Suffocation from Noxious Gases, Foul Air, Fire Damp, Etc.—Remove to fresh air and dash cold water over the head, neck and chest; carefully apply hartshorn, or smelling salts to the nostrils, and when the breathing is feeble or has ceased, resort immediately to artificial respiration (see Asphyxia and Drowning). Keep up the warmth of the body, and as soon as the patient can swallow give stimulants in small quantities.

Sunstroke.—This is caused by long exposure in great heat, especially when accompanied with great fatigue and exhaustion. Though generally happening from exposure to the sun's rays, yet precisely similar effects may be and are produced from any undue exposure to great and exhaustive heat, such as workmen are exposed to in foundries, gas factories, bakeries, and other similar employments. Its first symptom is pain in the head and dizziness, quickly followed by loss of consciousness, and resulting in complete prostration; sometimes, however, the attack is sudden, as in apoplexy. The head is generally burning hot, the face dark and swollen, the breathing labored and snoring, and the feet and hands cold. Remove the patient at once to a cool and shady place, and lay him down with his head a little raised; apply ice or iced water to the head and face; loosen all cloths around the neck or waist; bathe the chest with cold water, apply mustard plasters, or cloths wetted with turpentine, to the calves and soles of the feet, and as soon as the patient can swallow, give weak brandy or whisky and water.

HOW TO CURE, STORE AND PRESERVE MEATS AND VEGETABLES

How to Keep Apples.—The following is a good plan: The apples should be placed in glazed earthen vessels, each containing about a gallon, and surrounding the fruit with paper. The vessels being perfect cylinders, about a foot each in height, stand very conveniently upon each other, and thus present the means of preserving a large quantity of fruit in a very small room. If the space between the top of one vessel and the base of another be filled with cement, composed of two parts of the curd of skimmed milk and one of lime, by which the air will be excluded, the winter kind of apples will be preserved with little change in their appearance from October to March. A dry and cold place in which there is little change of temperature is the best.

How to Dry Apples.—The most general method adopted in drying apples is, after they are pared, to cut them in slices, and spread them on cloths, tables or boards, and then dry them out-doors. In clear and dry weather

this is, perhaps, the most expeditious and best way; but in cloudy and stormy weather this way is attended with much inconvenience, and sometimes loss, in consequence of the apples rotting before they dry. To some extent they may be dried in this way in the house, though this is attended with much inconvenience. The best method that we have ever used to dry apples is to use frames. These combine the most advantages with the least inconvenience of any way, and can be used with equal advantage either in drying in the house or out in the sun. In pleasant weather, the frames can be set out doors against the side of the building, or any other support, and at night, or in cloudy and stormy days, they can be brought into the house, and set against the side of the room near the stove or fireplace. Frames are made in the following manner: Two strips of board, 7 feet long, 2 to 2½ inches wide—two strips 3 feet long, 1½ inches wide, the whole ¾ of an inch thick—nail the short strips across the ends of the long ones, and it makes a frame 3 by 7 feet, which is a convenient size for all purposes. On one of the long strips nails are driven 3 inches apart, extending from the top to the bottom. After the apples are pared they are quartered and cored, and with a needle and twine, or stout thread strung into lengths long enough to reach twice across the frame; the ends of the twine are then tied together, and the strings hung on the nails across the frame. The apples will soon dry so that the strings can be doubled on the nails, and fresh ones put on or the whole of them removed, and others put in their place. As fast as the apples become sufficiently dry, they can be taken from the strings, and the same strings used to dry more on. If large apples are used to dry, they can be cut in smaller pieces. Pears and quinces, and other fruits that can be strung, may be dried in this way.

How to Pack Apples in Barrels.—When the farmers find out that the manner of packing apples in barrels greatly influences the price of the same, they will take more care than they usually do. A neatly packed barrel will bring from one to two dollars more than one in which the apples are thrown in without any effort to make a good show. When you begin to pack the barrel turn it upside down, the head resting on the ground or floor; then take the bottom out, leaving the head in. Then choose about a peck of your prettiest and finest apples; wipe them clean, being certain that there are no spots on them, or in any other manner disfigured; then place them in the barrel with their stems down, first placing them around the rim of the barrel, entirely round the same, after which make another ring, until the whole is covered. Then throw in your apples, and when your barrel is full, press them down and put in the bottom, after which turn them head upwards. When the barrel is opened from the top, your apples will be found in good condition, even and nicely packed.

Apple Butter.—Select two bushels of sour apples, and peel, core and quarter them. Take a barrel of good, sweet apple cider, and boil it in a copper kettle until all the impurities have arisen to the surface. After this is done, and the impurities skimmed off, take out two-thirds of the cider. Then put in the apples, and as the quantity boils down put in the rest of the cider. After putting in the apples the butter must be stirred without interruption until it is taken off. It will take about five hours' boiling after the apples are put into the cider. It should be boiled until the whole mass becomes smooth and of the same consistency, and of a dark brown color. Spice with ground cloves and cinnamon to taste. The butter can then be taken off and put into vessels for use. Earthen crocks are best for this purpose. Tie the vessels over with heavy paper and set them away in a dry place. The butter will keep a year if wanted.

How to Keep Beans Fresh for Winter.—Procure a wide-mouthed stone jar, lay on the bottom of it some freshly-pulled French beans, and over them put a layer of salt; fill the jar up in this manner with alternate layers of beans and salt. The beans need not all be put in at the same time, but they are better if the salt be put on while they are quite fresh. They will keep good all through the winter. When going to use them, steep for some hours in fresh cold water.

How to Dry String Beans.—Dried string beans are very excellent in winter. Cut the beans up in the usual lengths, dry them, put them in a bag. In winter, soak them and cook them in the usual way.

How to Pickle Beef.—Rub each piece of beef very lightly with salt; let them lie singly on a tray or board for twenty-four hours, then wipe them very dry. Pack them closely in a tub, taking care that it is perfectly sweet and clean. Have the pickle ready, made thus: Boil four gallons of soft water with ten pounds of coarse salt, four ounces of saltpeter, and two pounds of coarse brown sugar; let it boil fifteen minutes, and skim it while boiling very clean. When perfectly cold pour it on the beef, laying a weight on the top to keep the meat under the pickle. This quantity is sufficient for 100 pounds of beef if closely packed.

How to Preserve Butter.—1. The best method to preserve butter from the air is to fill the pot to within an inch of the top, and to lay on it common coarse-grained salt, to the depth of one-half an inch or three-quarters of an inch, then to cover the pot up with any flat article that may be convenient. The salt by long keeping will run to brine, and form a layer on the top of the butter, which will effectually keep out the air, and may at any time be very easily removed by turning the pot on one side.

2. Fresh butter, sixteen pounds; salt, one pound.

3. Fresh butter, eighteen pounds; salt, one pound; saltpeter, one and one-fourth ounces; honey or fine brown sugar, two ounces.

How to Make Pennsylvania Apple Butter.—Let three bushels of fair sweet apples be pared, quartered, and the cores removed. Meanwhile let two barrels of new cider be boiled down to one-half. When this is done, commit the prepared apples to the cider, and let the boiling go on briskly and systematically, stirring the contents without cessation, that they do not become attached to the side of the kettle and be burned. Let the stirring go on till the amalgamated cider and apples become as thick as hasty-pudding; then throw in pulverized allspice, when it may be considered as finished, and committed to pots for future use.

How to Pack and Preserve Butter.—Packing butter that is gathered up at country stores is a nice operation, and needs to be carefully performed. As it is of all shades of color, from white to pale yellow generally, a coloring may be prepared by melting some of the butter and dissolving in it the prepared annatto, which may be procured at any drug store. This should be kept for use as it is wanted. To use it, take a quantity of the butter to be colored in the mixing-bowl, cut into it gashes with the butter ladle (don't touch it with the hands), place a small portion of the coloring preparation in each of these gashes, and mix until the color is evenly spread and no streaks are to be seen. Then gash it once more with the ladle, sprinkle one ounce of salt to the pound of butter, and leave it twenty-four hours. Then pour off any water collected on it, and pack it in a new oak tub that has been soaked with brine for a day and night. Water should never be used for working butter at any time.

How to Preserve Birds.—Birds may be preserved in a fresh state for some time by removing the intestines, wiping the inside out quite dry with a towel, and then flouring them. A pieee of blotting paper, on which one or two drops of creoste have been plaeed, is now to be put inside them, and a similarly prepared piece of paper tied around them. They should then be hung up in a cool dry place, and will be found to keep much longer than without undergoing this proeess.

How to Keep Cabbage.—Gather them before the severe fall frosts. Let the coarse outside leaves remain on them. Fix a strong string around the stalk, and suspend the cabbage from the timbers of the eeiling, heads downward. The eellar should be eool and dry. This will preserve them with a eertainty.

Another good method is to cut the eabbage from the stump, paek elose in a cask, taking care to fill up all the vacancies with dry ehaff, or bran, and keep in a dry eellar.

How to Keep Cauliflower.—They can be kept in a eellar by eovering the roots and stalks with earth, till February. Or they may be placed in a trench in the garden, roots down, and covered with earth, up close to the heads, and then eover with hay or straw, four or five ineches thick, placing just enough soil on the straw to keep it in its position. This method does well in the latitude of New York; but in eolder climates a thicker eovering would be required.

How to Keep Celery.—This may be kept in good eondition through the winter in a eool, dry eellar, by having it set in earth. When a small quantity only is wanted, take a box and stand the celery up in it, placing a little earth about the roots. The farmers who raise quantities of it often keep it in their old hot-beds; standing it up, and protecting it from frosts. There is no vegetable more relished than this, and every person who has a garden should raise enough for his own use, if no more.

How to Keep Sweet Cider.—Use only sound apples. Make the cider when the weather is almost cold enough to freeze the apples. Expose the cider during freezing weather, and stir it till the whole of it is reduced as near the freezing point as possible without freezing. Then barrel it, bung up tight, and place in a cellar kept nearly down to the freezing point. As long as you ean keep it cold enough it will not ferment, and as long as it does not ferment it will remain sweet.

How to Dry Cherries.—Take the stems and stones from ripe eherries; spread them on flat dishes, and dry them in the hot sun or warm oven; pour whatever juiee may have run from them, a little at a time, over them, stir them about that they may dry evenly. When they are perfectly dry, line boxes or jars with white paper, and pack them elose in layers; strew a little brown sugar, and fold the paper over, and keep them in a dry place; or put them in muslin bags, and hang them in an airy plaee.

How to Store Eggs.—Wright's illustrated Book of Poultry says that a systematic trial for two seasons has shown that, tor purposes of long keeping for eating or breeding, eggs should be paeked with the large end downward, mstead of plaeing them on the small end, as is eommonly done. The longer the eggs are kept the greater differenee will be found in the results of the two methods. Experiment has proved that eggs placed as reeommended may be set and successfully hateked, with remarkable uniformity, at ages whieh with the usual method of storing would render success almost hopeless. The practieal philosophy of the case is alleged to consist in delaying the spread of the air bubble and its detachment from the membraneous lining of the egg, thus retarding alterations destruetive to vitality.

How to Dry Eggs.—The eggs are beaten to uniform consistency, and spread out in thin eakes on batter plates. This dries them in a paste, whieh is to be paeked in elose cans and sealed. When required for use, the paste ean be dissolved in water and beaten to a foam like fresh eggs. It is said that eggs ean be preserved for years in this way, and retain their flavor.

How to Pickle Eggs.—The jar is to be of moderate size—wide-mouthed earthen jar, suffieient to hold one dozen eggs; let the latter be boiled quite hard; when fully done, place the same, after taking them up, into a pan of cold water. Remove the shells from them and deposit them carefully in the jar. Have on the fire a quart or more of good white vinegar, into which put one ounee of raw ginger, two or three blades of sweet mace, one ounee of allspice, half an ounee of whole blaek pepper and salt, half an ounce of mustard seed, with four cloves of garlie. When it has simmered down, take it up and pour the eontents into the jar, taking eare to observe that the eggs are wholly eovered. When quite cold, stopper it down for use. It will be ready after a month. When eut into quarters, they serve as a garnish, and afford a niee relish to eold meat of any kind.

How to Keep Eggs.—1. Parties in the egg business in a large way build brick vats made water-tight, in whieh is lime water, made by putting lime in water, and when it is slacked and settled to the bottom, drawing off the liquor. Into this liquor the eggs are placed and kept beneath the surfaee. They are kept as cool as possible. These are the limed eggs with which the market is supplied during the winter.

2. Another mode of keeping eggs, tested by the Agricultural Department, is as follows: Rub the eggs with flaxseed (linseed) oil, and place them, small end downwards, in sand. Eggs so prepared were found at the end of six months to have the same taste and smell of perfeetly fresh eggs, and to have lost in weight only three per cent. Greasing eggs with lard or tallow has not been successful in preserving them, except for short periods.

3. Take a thin board of any convenient length and width and pierce it full of holes (each one and a half inches in diameter) as you can. A board two feet and six inches in length and one foot wide, has five dozen holes in it, say twelve rows of five each. Then take four strips two inches broad and nail them together edgewise into a rectangular frame of the same size as your other board. Nail this board upon a frame and the work is done unless you ehoose to nail a heading around the top. Put your eggs in this board as they come from the poultry house, the small ends down, and they will keep good for six months, if you take the following precautions: Take care that the eggs do not get wet, either in the nest or afterwards. Keep them in a eool room in summer, and out of the reaeh of frost in winter. If two boards be kept, one ean be filling while the other is emptying.

4. Eggs ean easily be kept from Oetober to March in the following manner: A pieee of lime, as large as a quart dipper, is put in five gallons of water, and salt added until an egg will float. This is strained and put into a clean keg, into which a loose head is made to fit easily; a knob is fitted to the head for a handle. The eggs are put, as they are gathered, into the liquid, and the loose head plaeed on them to keep them below the surface. The keg should be kept in a cool plaee in the eellar. The liquor will not freeze except at a lower temperature than freezing point. Eggs thus preserved will sell readily as limed eggs until fresh eggs come, and are almost as good as fresh ones.

5. Take one quart of unslacked lime, pour to it water enough to make it the consisteney of whitewash, add one

teaspoon of cream tartar; let this be in a wooden or stone vessel, and put the eggs into it.

6. Hang them by hooks in strong cabbage nets, and every day hook them on a fresh mesh, so as thereby to turn the eggs.

7. Apply with a brush a solution of gum arabic to the shells, or immerse the eggs therein, let them dry, and afterwards pack them in dry charcoal dust. This prevents their being affected by alterations of temperature.

8. Mix together in a tub, or vessel, one bushel Winchester measure of quick lime, thirty-two ounces of salt, eight ounces of cream of tartar, with as much water as will reduce the composition to a sufficient consistence to float an egg. Then put and keep the eggs therein, which will preserve them perfectly sound for two years at least.

9. Eggs can be preserved by keeping them at a temperature of forty degrees or less in a refrigerator. Eggs have been tested when kept in this manner for two years and found to be perfectly good.

10. Dissolve three or four ounces of beeswax in seven ounces of warm olive oil; put in this the tip of your finger and anoint the egg all over. Keep the eggs in a cool place and they will keep fresh for five years.

How to Can Fruit.—The principle should be understood, in order to work intelligently. The fruit is preserved by placing it in a vessel from which the external air is entirely excluded. This is effected by surrounding the fruit by liquid, and by the use of heat to rarefy and expel the air that may be entangled in the fruit or lodged in its pores. The preservation does not depend upon sugar, though enough of this is used in the liquid which covers the fruit to make it palatable. The heat answers another purpose; it destroys the ferment which fruits naturally contain, and as long as they are kept from contact with the external air they do not decompose.

The vessels in which fruits are preserved are tin, glass, and earthenware, Tin is used at the factories where large quantities are put up for commerce, but is seldom used in families, as more skill in soldering is required than most people possess. Besides, the tins are not generally safe to use more than once. Glass is the preferable material, as it is readily cleaned and allows the interior to be frequently inspected. Any kind of bottle or jar that has a mouth wide enough to admit the fruit and that can be securely stopped, positively air-tight—which is much closer than water-tight—will answer jars of various patterns and patents are made for the purpose, and are sold at the crockery and grocery stores. These have wide mouths, and a glass or metallic cap which is made to fit very tightly by an India-rubber ring between the metal and the glass. The devices for these caps are numerous, and much ingenuity is displayed in inventing them. We have used several patterns without much difference in success, but have found there was some difference in the facility with which the jars could be opened and closed. The best are those in which atmospheric pressure helps the sealing, and where the sole dependence is not upon screws or clamps. To test a jar, light a slip of paper and hold it within it. The heat of the flame will expand the air and drive out a portion of it. Now put on the cap, when the jar becomes cool the air within will contract, and the pressure of the external air should hold the cover on so firmly that it cannot be pulled off without first letting in the air by pressing aside the rubber or by such other means as is provided in the construction of the jar. When regular fruit jars are not used, good corks and cement must be provided.

Cement is made by melting $1\frac{1}{4}$ ounce of tallow with 1 pound of rosin. The stiffness of the cement may be governed by the use of more or less tallow. After the jar is corked, tie a piece of stout drilling over the mouth. Dip the cloth on the mouth of the jar into the melted cement, rub the cement on the cloth with a stick to break up the bubbles, and leave a close covering.

The process. Everything should be in readiness, the jars clean, the covers well fitted, the fruit picked over or otherwise prepared, and the cement and corks, if these are used, at hand. The bottles or jars are to receive a very hot liquid, and they must be gradually warmed beforehand, by placing warm water in them, to which boiling water is gradually added. Commence by making a syrup in the proportion of a pound of white sugar to a pint of water, using less sugar if this quantity will make the fruit too sweet. When the syrup boils, add as much fruit as it will cover, let the fruit heat in the syrup gradually, and when it comes to a boil, ladle it into the jars or bottles which have been warmed as above directed. Put in as much fruit as possible, and then add the syrup to fill up the interstices among the fruit; then put on the cover or insert the stopper as soon as possible. Have a cloth at hand dampened in hot water to wipe the necks of the jars. When one lot has been bottled, proceed with more, adding more sugar and water if more syrup is required. Juicy fruits will diminish the syrup much less than others. When the bottles are cold, put them away in a cool, dry and dark place. Do not tamper with the covers in any way. The bottles should be inspected every day for a week or so, in order to discover if any are imperfect. If fermentation has commenced, bubbles will be seen in the syrup, and the covers will be loosened. If taken at once, the contents may be saved by thoroughly reheating. Another way is to prepare a syrup and allow it to cool. Place the fruit in the bottles, cover with the syrup and then set the bottles nearly up to their rims in a boiler of cold water. Some wooden slats should be placed at the bottom of the boiler to keep the bottles from contact with it. The water in the boiler is then heated and kept boiling until the fruit in the bottles is thoroughly heated through, when the covers are put on, and the bottles allowed to cool. It is claimed that the flavor of the fruit is better preserved in this way than by the other.

What may be preserved.—All the fruits that are used in their fresh state or for pies etc., and rhubarb, or pie-plant, and tomatoes. Green peas, and corn, cannot be readily preserved in families as they require special apparatus. Strawberries—hard-fleshed sour varieties, such as the Wilson, are better than the more delicate kinds.

Currants need more sugar than the foregoing. Blackberries and huckleberries are both very satisfactorily preserved, and make capital pies. Cherries and plums need only picking over. Peaches need peeling and quartering. The skin may be removed from ripe peaches by scalding them in water or weak lye for a few seconds, and then transferring them to cold water. Some obtain a strong peach flavor by boiling a few peach meats in the syrup. We have had peaches keep three years, and were better then than those sold at the stores. Pears are pared and halved, or quartered, and the core removed. The best, high-flavored and melting varieties only should be used. Coarse baking pears are unsatisfactory. Apples—very few put up these. Try some high-flavored ones, and you will be pleased with them. Quinces—there is a great contrast between quinces preserved in this way and those done up in the old way of pound for pound. They do not become hard, and they remain of a fine light color. Tomatoes require cooking longer than the fruits proper. Any intelligent person who understands the principle upon which fruit is preserved in this way, will soon find the mechanical part easy of execution and the results satisfactory.

How to Protect Dried Fruit From the Worms.—It is said that dried fruit put away with a little bark

sassafras (say a large handful to the bushel) will save for years, unmolested by those troublesome little insects, which so often destroy hundreds of bushels in a single eason. The remedy is cheap and simple, but we venture to say a good one.

How to Keep Canned Fruit.—The preservation of canned fruits depends very much on the place where they are stored. If put in a cellar, unless it is exceptionally dry, they will gather mould and loose all the fine, fresh flavor it is so desirable to retain. If kept in too warm a spot, they will ferment and burst the cans, and in that case, even if the fauit has not been spilled over the shelver, it will have been made so sour that no re-scalding, etc., can make it good. Severe cold does not injure it unless the weather is below zero.

One stinging cold morning we entered our milk room to find long rows of grenadiers in red coats, standing triumphantly amid the fragments of numerous defeated bottles.

The tomatoes being preserved entirely without sugar or spice were frozen to a solid red ice, but the fruits put up with a small quantity of sugar were only slightly frozen, and as we immediately immersed the jars in cold water until the frost was extracted, they did not burst. The tomatoes were saved by an immediate re-bottling.

A double-walled closet in a fireless room on the second floor is one of the best places for storing canned fruits in the winter; and in summer a cool milk-room will be found safe.

How to Dry Gooseberries.—To seven pounds of red gooseberries add a pound and a half of powdered sugar, which must be stewed over them in the preserving pan; let them remain at a good heat over a slow fire till they begin to break; then remove them. Repeat this process for two or three days; then take the gooseberries from the syrup, and spread them out on sieves near the fire to dry. This syrup may be used for other preserves. When the gooseberries are quite dry, store them in tin boxes or layers of paper.

How to Keep Red Gooseberries.—Pick Gooseberries when fully ripe, and for each quart take a quarter of a pound of sugar and a gill of water; boil together until quite a syrup; then put in the fruit, and continue to boil gently for fifteen minutes; then put them into small stone jars; when cold, cover them close; keep them for making tarts or pies.

How to Keep Grapes.—1. They must not be too ripe. Take off any imperfect grapes from the bunches. On the bottom of a keg put a layer of bran that has been well dried in an oven, or in the sun. On the bran put a layer of grapes, with bran between the bunches so that they may not be in contact. Proceed in the same way with alternate layers of grapes and bran, till the keg is full; then close the keg so that no air can enter. 2. In a box first lay a paper, then a layer of grapes, selecting the best bunches and removing all imperfect grapes, then another paper, then more grapes, and so on until the box is full; then cover all with several folds of paper or cloth. Nail onthe lid, and set in a cool room where it will not freeze. We use small boxes, so as not to disturb more than we want to use in a week or so. Give each bunch plenty of room so they will not crowd, and do not use newspapers. Some seal the stems with sealing wax and wrap each bunch by itself, but we get along without that trouble. The grapes should be looked to several times during the winter. Should any mould or decay, they should be removed and the good ones again repacked. By this means we have had, with our pitcher of cider and basket of apples, our plate of grapes daily, besides distributing some among our friends and the sick of the neighborhood. 3. (*Chinese Method.*) It consists in cutting a circular piece out of a ripe pumpkin or gourd, making an aperture large enough to admit the hand. The interior is then completely cleaned out, the ripe grapes are placed inside, and the cover replaced and pressed in firmly. The pumpkins are then kept in a cool place—and the grapes will be found to retain their freshness for a very long time. We are told that a very careful selection must be made of the pumpkin, the common field pumpkin, however, being well adapted for the purpose in question.

How to Cure Hams.—The committee on bacon hams of the Second Annual Exhibition of the Frederick (Maryland) County Agricultural Society awarded the first premium to Mrs. George M. Potts, and the second to W. H. Lease, Esq., and observed "that the hams were remarkable for their excellent flavor, and were at the same time juicy and tender."—The following are the recipes:

Mrs. Potts' Recipe.—To each green ham of eighteen pounds, one dessert-spoonful of saltpetre; one-fourth pound of brown sugar applied to the fleshy side of the ham and about the hock; cover the fleshy side with fine salt half an inch thick, and pack away in tubs; to remain from three to six weeks, according to size. Before smoking rub off any salt that may remain on the ham, and cover well with ground pepper, particularly about the bone and hock. Hang up and drain for two days: smoke with green wood for eight weeks, or until the rind assumes a light chestnut color. The pepper is an effectual preventive of the fly. I never bag hams. This recipe took the first premium.

Mr. Lease's Recipe.—When the hams were cool he salted them down in a tight cask, putting a bushel of salt, well mixed with six ounces of saltpetre, to about one thousand pounds of pork; after it had been salted down four or five days, he made a strong brine, sufficient to float an egg, and cured the meat with it, and then let it remain five weeks longer; then hung it up, dusting the fresh sides with black pepper; then smoked with green wood.

Another.—After cutting out the pork, rub the skin-side with about half a teaspoonful of saltpetre, well rubbed in. Rub the pieces all over with salt, leaving them well covered on the fleshy side. Then lay the hams in large, tight troughs, skin-side down. Continue this process until it is all salted down. Let them remain in the troughs without touching or troubling them for four or five weeks, according to the size of the hog, no matter how warm or changeable the weather is. Then take them out of the trough, and string them on white-oak splits; wash all the salt off with the brine, if sufficient; if not, with water; then rub them well and thoroughly with wood ashes. Let them hang up and remain twenty-four hours or two or three days before you make the smoke under them, which must be made of green chips, and not chunks. Make the smoke under them every day, and smoke them five or six weeks. After the smoke stops, let the hams remain hanging all the time. Shoulders cure in the same manner. Always kill your hogs in the morning, and let them remain from twenty-four to thirty-six hours before cutting them up.

How to Keep Smoked Hams.—Make sacks of coarse cotton cloth, large enough to hold one ham, and fill in with chopped hay all around about two inches thick. The hay prevents the grease from coming in contact with the cloth, and keeps all insects from the meat. Hang in the smoke-house, or other dry, cool place, and they will keep a long time.

How to Dry Herbs.—They should be gathered in a dry season, cleansed from discolored and rotten leaves, screened from earth or dust, placed on handles covered with blotting paper, and exposed to the sun or the heat of a stove, in a dry, airy place. The quicker they are dried the better, as they have less time to ferment or grow

moldy; hence they should be spread thin, and freqnently turned; when dried they should be shaken in a large meshed sieve to get rid of the eggs of any insects. Aromatic herbs ought to be dried quickly with a moderate heat that their odor may not be lost. Cruciferous plants should not be dried, as in that case they lose much of their antiscorbutic qualities. Some persons have proposed to dry herbs in a water bath, but this occasions them, as it were, to be half boiled in their own water.

How to Keep Honey.—After the honey is passed from the comb, strain it through a sieve, so as to get out all the wax; gently boil it, and skim off the whitish foam which rises to the surface, and then the honey will become perfectly clear. The vessel for boiling should be earthen, brass, or tin. The honey should be put in jars, when cool, and tightly covered.

To keep honey in the comb, select combs free from pollen, pack them edgewise in jars or cans, and pour in a sufficient quantity of the boiled and strained honey (as above) to cover the combs. The jars or cans should be tightly tied over with thick cloth or leather. These processes have been in use for twenty years with unvarying success.

How to Make Artifical Honey.—to ten pounds of good brown sugar add four pounds of water, gradually bring it to a boil, skimming it well. When it has become cooled, add two pounds of bees' honey and eight drops of peppermint. A better article can be made with white sugar instead of common, with one pound less of water, and one pound more of honey. To twenty pounds of coffee sugar add six pounds of water, four ounces cream of tartar, four tablespoonfuls of vinegar (strong), the white of two eggs, well beaten, and one pound of bees' honey, Lubin's extract of honeysuckle, twenty drops. Place the water and sugar in a kettle, and put it over a fire; when lukewarm add the cream of tartar, stirring it at the time; then add the egg, and when the sugar is melted, put in the honey and stir it well until it comes to a boil; then take it off, let it stand five minutes, then strain, adding the extract last. Let it stand over night, and it is ready for use.

How to Keep Horse-Radish.—Grate a sufficient quantity during the season, while it is green, put it in bottles, fill up with strong vinegar, cork them tight, and set them in a good place.

How to Keep Lard from Moulding.—It is not likely to mold if properly tried and kept in a cool, dry place. Earthen crocks or pans well tinned are good to put lard in for keeping. Lard made from intestinal fat will not keep so long as leaf fat. It should be soaked two or three days in salted water, changed each day.

How to Keep Lard Sweet.—Even during the warmest weather lard can be kept sweet by the following plan: When rendering (melting) it, throw into each kettle a handful of fresh slippery elm bark. No salt must be added to it at any time. The jars in which the lard is to be kept must be thoroughly cleansed.

How to Bleach Lard.—Lard may be bleached by applying a mixture of bichromate of potassa and muriatic acid, in minute proportions, to the fat.

How to Try Out Lard.—This should be done in the open air. Set a large kettle over the fire, in some sheltered place, on a still day. It will cook much quicker in large quantities. Put into the kettle, while the lard is cold, a little saleratus, say one tablespoonful to every twenty pounds; stir almost constantly when nearly done, till the scraps are brown and crisp, or until the steam ceases to rise; then there is no danger of its molding; strain out into pans, and the first will be ready to empty into crocks when the last is strained.

How to Make Lard.—Cut the fat up into pieces about two inches square; fill a vessel holding about three gallons with the pieces; put in a pint of boiled lye made from oak and hickory ashes, and strained before using; boil gently over a slow fire, until the cracklings have turned brown; strain and set aside to cool. By the above process you will get more lard, a better article, and whiter than by any other process.

How to Keep Meat Fresh in Winter.—In Minnesota, where winter thaws are not much to be feared, it is quite common to hang up a porker or a leg of venison or beef, and cut from it as it hangs, week after week. It seems to us that meat so kept must greatly deteriorate in flavor. We like best to cut the beef or venison into good pieces for cooking in various ways, and pack them down in snow. Of course they freeze, but thawing a piece brought in to cook is a simple matter. Put frozen poultry or meat in cold water, and all the frost will shortly leave it. A coating of ice will be found on the outside, which will easily cleave off.

How to Protect Meat from Fly.—An effectual way of excluding the fly is by using a wire meat-safe, or by covering the joints with a long loose gauze, or some thin cloth, and hanging them from the ceiling of a dry room. Pepper and ginger should be sprinkled on the parts likely to be attacked by the fly, but should be washed off before the joint is put to the fire.

How to Cure Meat.—To one gallon of water add one and a half pounds of salt, half a pound of sugar, half an ounce of saltpetre, half an ounce of potash. In this ratio the pickle to be increased to any quantity desired. Let these be boiled together until all the dirt from the sugar rises to the top and is skimmed off. Then throw it into a tub to cool, and when cold pour it over your beef or pork, to remain the usual time, say four or five weeks. The meat must be well covered with pickle, and should not be put down for at least two days after killing, during which time it should be slightly sprinkled with powdered saltpetre, which removes all the surface blood, etc., leaving the meat fresh and clean. Some omit boiling the pickle, and find it to answer well, though the operation of boiling purifies the pickle by throwing off the dirt always to be found in salt and sugar. If this recipe is properly tried it will never be abandoned. There is none that surpasses it, if so good.

How to Preserve Meat in Cans.—A new method of preserving meat in tin cans, which is favorably commented upon, is that of Mr. R. Jones, of London. In this process the meat is first packed in its raw state into tins of any desired size. The lids are then soldered down, the top of each lid having a small tin tube inserted into it, which communicates with the interior of the tin. These tubes are next inserted into the exhauster, which is a receptacle connected with a machine designated a "Torricellian vacuum," an apparatus in which the air is exhausted by the action of water. The tins are then placed in the cooking-bath, and at the proper juncture the vacuum is created and the meat most thoroughly cooked, at a temperature varying from 180 to 228 degrees. At this stage another feature of the invention comes into play. The vacuum having been created, a supply of gravy is turned on from a receptacle, and the tins filled with nutritious fluid. The feed pipes of the tins are then nipped and the cases hermetically sealed. By thus filling the tins with the gravy the difficulty of collapse, which has always hitherto prevented large tins from being used, is obviated, while the whole space of the package is utilized. Testimonials, from captains of ships and others who have used it, are furnished by the inventor, certifying to the excellent quality of the

meat. By this improved process, overcooking the meat is prevented, and as now prepared it would seem to merit general approbation.

How to Pickle Meat.—Moist sugar, 2 pounds; bay or common salt, 4 pounds; saltpetre, ½ pound; fresh ground allspice, 2 ounces; water, 6 to 8 quarts. Dissolve. Used to pickle meat, to which it imparts a fine red color and a superior flavor.

How to Keep Milk.—Milk may be preserved in stout, well-corked and wired bottles by heating them to the boiling point in a water-bath, by which the small quantity of inclosed air becomes decomposed. Milk, or green gooseberries, or peas, thus treated, will keep for two years. Some persons add a few grains of calcined magnesia to each bottle of milk before corking it.

Mince Meats.—Three pounds of raisins, stoned; three pounds of currants; three pounds of beef suet, chopped fine; one pound of bread crumbs; three-quarters of a pound of mixed candied peel; one and a half pounds of fillet of beef, previously cooked; salt, sugar, spices and ginger to taste. Each ingredient to be chopped up separately, and very fine. Mix all well together, and take especial care that the beef is well mixed with the other ingredients. Moisten with a bottle of brandy and stir occasionally. Another: Half a pound of candied peel, cut in delicate slices, then chopped; two wineglassfuls of brandy. Mix well together with a wooden spoon, and put the mince meat, well pressed down, into a covered jar, tied over very well. The mince meat should be made some days before it is wanted, and when about to be used a little more brandy should be stirred into it. Another: Quarter of an ounce of fine salt; half an ounce of mixed spice; three pounds of moist sugar; three pounds of well-cleaned currants; two pounds of stoned raisins, chopped; two and a half pounds of beef suet, finely chopped; the thinnest peel of two lemons and their juice; two pounds of apples, baked to a pulp, and weighed when cold.

How to Keep Onions.—Gather in fall and remove the tops; then spread upon a barn floor or in any open shed, and allow them to remain there until thoroughly dry. Put into barrels or small bins or boxes and place in a cool place, and at the approach of cold weather cover with straw or chaff, if there is danger of very severe freezing. Onions are often injured in winter by keeping them in too warm a place. They will seldom be injured by frost if kept in the dark, and in tight barrels or boxes, where not subjected to frequent changes of temperature. It is the alternate freezings and thawings that destroy them, and if placed in a position where they will remain frozen all winter, and then thawed out slowly and in a dark place, no considerable injury would result from this apparently harsh treatment. Onions should always be stored in the coolest part of the cellar, or put in chaff and set in the barn or some out-house.

How to Keep Parsnips.—The almost universal practice among farmers is to allow their parsnips to remain in the ground through winter, just where they were grown. We believe the quality of this root is improved by being frozen, or at least kept cool, but it is not necessary to leave them in the open garden during winter, where, if the ground remain frozen, they cannot be got at until it thaws in spring, and then used in a very few weeks or not at all. If the roots are dug up late in the fall, leaving all the tops on, then carefully heeled in thickly together in rows, after which cover with a little coarse litter, they can be reached whenever wanted during winter.

How to Dry Peaches.—Never pare peaches to dry. Let them get mellow enough to be in good eating condition, put them in boiling water for a moment or two, and the skins will come off like a charm. Let them be in the water long enough, but no longer. The gain is at least sixfold—saving of time in removing the skin, great saving of the peach, the part of the peach saved is the best part, less time to stone the peaches, less time to dry them, and better when dried. A whole bushel can be done in a boiler at once, and the water turned off.

How to Can Peaches.—Pare and halve your peaches. Pack them as closely as possible in the can without any sugar. When the can is full, pour in sufficient pure cold water to fill all the interstices between the peaches, and reach the brim of the can. Let them stand long enough for the water to soak into all the crevices—say six hours—then pour in water to replace what has sunk away. Seal up the can, and all is done. Canned in this way, peaches retain all their freshness and flavor.

There will not be enough water in them to render them insipid. If preferred, a cold syrup could be used instead of pure water, but the peaches taste more natural without any sweet.

How to Preserve Green Peas.—When full grown, but not old, pick and shell the peas. Lay them on dishes or tins in a cool oven, or before a bright fire; do not heap the peas on the dishes, but merely cover them with peas. stir them frequently, and let them dry very gradually. When hard, let them cool, then pack them in stone jars, cover close and keep them in a very dry place. When required for use, soak them for some hours in cold water till they look plump before boiling; they are excellent for soup.

Piccalilli, Indian Method.—This consists of all kinds of pickles mixed and put into one large jar—sliced cucumbers, button onions, cauliflowers, broken in pieces. Salt them, or put them in a large hair sieve in the sun to dry for three days, them scald them in vinegar a few minutes, when cold put them together. Cut a large white cabbage in quarters, with the outside leaves taken off and cut fine, salt it and put in the sun to dry three or four days, then scald it in vinegar, the same as cauliflower; carrots, three parts, boiled in vinegar and a little bay salt. French beans, radish, pods, and nasturtiums,all go through the same process as capsicums, etc. To 1 gallon of vinegar put 4 ounces of ginger bruised, 2 ounces of whole white pepper, 2 ounces of allspice, ½ ounce chillies bruised, 4 ounces of turneric, 1 pound of the best mustard, ½ pound of shallots, 1 ounce of garlic, and ½ pound of bay salt. The vinegar, spice, and other ingredients, except the mustard, must boil half an hour; then strain it into a pan, put the mustard into a large basin, with a little vinegar ; mix it quite fine and free from lumps, then add more. When well mixed put it into the vinegar just strained off, and when quite cold put the pickles into a large pan, and the liquor over them ; stir them repeatedly, so as to mix them all. Finally, put them into a jar, and tie them over first with a bladder, and afterwards with leather. The capsicums want no preparation.

How to Store Potatoes.—Potatoes should not be exposed to the sun and light any more than is necessary to dry them after digging them from the hill. Every ten minutes of such exposure, especially in the sun; injures their edible qualities. The flesh is thus rendered soft, yellowish or greenish, and injured in flavor. Dig them when dry, and put them in a dark cellar immediately, and keep them there till wanted for use, and there would not be so much fault found about bad quality. This is also a hint to those grocers and marketmen who keep their potatoes in barrels in the sun—that is, if they wish to furnish their customers with a good article.

How to Keep Potatoes from Sprouting.—To keep potatoes intended for use at the table from sprouting until

new potatoes grow, take boiling water, pour into a tub, turn in as many potatoes as the water will cover, then pour off all the water, handle the potatoes carefully, laying up in a dry place on boards, only one layer deep, and see if you do not have good potatoes the year round, without hard strings and watery ends caused by growing.

How to Dry Pumpkins.—Take the ripe pumpkins, pare, cut into small pieces, stew soft, mash and strain through a colander, as if for making pies. Spread this pulp on plates in layers not quite an inch thick; dry it down in the stove oven, kept at so low a temperature as not to scorch it. In about a day it will become dry and crisp. The sheets thus made can be stowed away in a dry place, and they are always ready for use for pies or sauce. Soak the pieces over night in a little milk, and they will return to nice pulp, as delicious as the fresh pumpkin. The quick drying after cooking prevents any portion from slightly souring, as is always the case when the uncooked pieces are dried; the flavor is much better preserved, and the after-cooking is saved.

How to Keep Rain-Water Sweet.—The best way to keep rain-water sweet in a cistern, is to first collect it in a tank, and filter it into the cistern below the surface. This will remove the organic matters, and prevent fermentation. Care should also be taken to prevent surface drainage into it.

How to Preserve Rosebuds.—A method employed in Germany to keep rosebuds fresh into the winter, consists in first covering the end of the recently cut stem with wax, and then placing each one in a closed paper cap or cone, so that the leaves do not touch the paper. The cap is then coated with glue, to exclude air, dust and moisture, and when dry it is stood up in a cool place. When wanted for use, the bud is taken out of the cap and placed in water, after cutting off the end, when the rose will bloom in a few hours.

How to Keep Sweet Potatoes.—Sweet potatoes can be kept by placing them in bulk in a bin or box (the more the better) without drying, and maintaining for them a uniform temperature of 45° to 50°. Putting something between, among, or around them, may serve to keep them at the proper temperature, but it is of no value whatever aside from this; and if it should retain dampness, it will be a positive injury. After the sweat takes place, say in three or four weeks, scatter over them a light covering of dry loam or sand. In this way it is easy to keep sweet potatoes for table use or for seed, as well as "the inferior and less nourishing Irish potato." Another way is to pack in barrels, and pour in kiln-dried sand until the intervals are full; or boxes of uniform size, piled up on the side of a room where the temperature never falls to the freezing point, which is a condition of first importance. This wall of boxes may be papered over, and left undisturbed until spring, when the potatoes will command the highest prices.

How to Keep Sweet Potatoes in Bulk.—A sweet potato grower in Southern Illinois states that sweet potatoes will keep in bulk. He has kept seven hundred bushels in one pile. The potatoes should be dug before the vines are injured by frost, sunned until dry, and then placed in a cellar on a clay floor, putting fine hay or flax straw between the potatoes and the wall, and covering with the same material. The deeper and larger the pile the better. The hay or straw should be covered with clay, a thickness of one or two inches being sufficient for the climate of that region. At the top should be left one or more air-holes, according to the size of the pile, for the escape of steam. In damp, warm weather open a window or door in the day-time.

How to Make Hard Soap.—After the raw soda or barilla is ground or pounded, it is placed in a vat in alternate layers with unslacked lime, the bottom layer being lime. Water is allowed to infiltrate through those layers, and the lye is secured as it trickles through a hole in the bottom of the vat. The lime absorbs the carbonic acid of the soda, making the lye caustic or fit for the soap-kettle; and the quantity of lime applied must be in proportion to the quantity of carbonic acid in the soda. To every twenty pounds of tallow add one gallon of weak lye, and boil until the lye is spent. The mass must then cool for one hour, the spent lye drawn off, and another gallon of strong lye be added; the mixture again boiled until the second dose of lye is spent, and the same process must be repeated for several days, until the mixture, if properly managed, is converted into white tallow soap, which should be allowed to cool gradually and settle, when it is poured into molds, and when solid it is cut into the bars which are found in our markets. Twenty pounds of tallow ought to make 30 pounds of first-quality hard soap, allowing three pounds of soda-ash for every 20 pounds of tallow. The balance of the weight is made up by the large quantity of water which enters into combination with the grease and alkali in the course of saponification.

When yellow or resin soap is required, the hard soap has to be made in the usual manner, and at the last charge of lye, or when the soapy mass ceases to absorb any more lye, one-third the weight of pounded resin is introduced, the mixture constantly stirred, and the boil kept up vigorously until the resin has become incorporated with the soap. The whole must stand until it settles, and the soap then dipped out. Resin soap, when well made, should be a fine bright color.

How to Make Soft Soap.—The principal difference between hard and soft soaps is, that three parts of fat afford, in general, fully five parts hard soda-soap; but three parts of fat or oil will afford six or seven parts of potash-soap of a moderate consistence. From its cheapness, strength, and superior solubility, potash-soap is preferred for many purposes, particularly for the scouring of woolens.

The lyes prepared for making soft soaps should be made very strong, and of two densities, as the process of making potash or soft soap differs materially from that of making soda or hard soap. A portion of the oil or fat being placed in the boiling-pan, and heated to near the boiling point of water, a certain portion of the weaker lye is introduced, and the fire kept up so as to bring the mixture to the boiling point; then some more oil and lye are introduced alternately, until the pan is filled. The boiling is continued gently, strong lye being added until the saponification is complete. The fire should then be removed, and some good soap, previously made, added while cooling down, to prevent any change by evaporation. One pound of oil requires about one-third of a pound of American potash, and will make one and three-quarters to two pounds of well-boiled soap, containing about 40 per cent. of water. Sixty pounds of lard will make 100 pounds of first-class soft soap, by using one and a half cans of concentrated lye, which is made from salt, and is really a soda-lye.

How to Make Sauerkraut—In the first place, let your "stand," holding from half a barrel to a barrel, be thoroughly scalded out; the cutter, the tub and the stamper also well scalded. Take off all the outer leaves of the cabbages, halve them, remove the heart, and proceed with the cutting. Lay some clean leaves at the bottom of the stand, sprinkle with a handful of salt, fill in half a bushel of cut cabbage, stamp gently until the juice just makes its appearance, then add another handful of salt, and so on until the stand is full. Cover over with cabbage leaves,

place on top a clean board fitting the space pretty well, and on top of that a stone weighing twelve or fifteen pounds. Stand away in a cool place, and when hard freezing comes on remove to the cellar. It will be ready for use in from four to six weeks. The cabbage should be cut tolerably coarse. The Savoy variety makes the best article, but it is only half as productive as the Drumhead and Flat Dutch.

How to Make and Keep Sausage.—To make family sausage, the trimmings and other lean and fat portions of pork are used, taking care that there is about twice as much lean as fat; some consider it an improvement to add about one-sixth of the weight of lean beef. As to seasoning, that is a matter of taste. The majority of people use salt, pepper, and sage only, some use only salt and pepper, while others, in addition to the above, put in thyme, mace, cloves and other spices. There is something repulsive about the intestines or "skins" used for stuffing sausage, and the majority preserve the meat in bulk. In cold weather it will keep for a long time, but if it is desired to preserve it beyond cold weather it needs some care. We have found that muslin bags, made of a size to hold a roll two and one-half or three inches in diameter, keep the meat very satisfactorily. These bags, when filled with sausage meat, are dipped into melted lard, and hung up in a dry, cool place. For seasoning, we use to one hundred pounds of meat forty ounces salt, and from eight to ten ounces of pepper.

How to Keep Suet.—Suet may be kept a year, thus: Take the firmest and most free from skin or veins, remove all traces of these, put the suet in the saucepan at some distance from the fire, and let it melt gradually; when melted, pour it into a pan of cold spring water; when hard, wipe it dry, fold it in white paper, put it in a linen bag, and keep it in a cool, dry place; when used, it must be scraped, and it will make an excellent crust with or without butter.

How to Can Tomatoes.—The most thorough and reliable mode of canning tomatoes is as follows: They are just sufficiently steamed, not cooked, to scald or loosen the skin, and are then poured upon tables and the skin removed, care being taken to preserve the tomato in as solid a state as possible. After being peeled, they are placed in large pans, with false bottoms perforated with holes, so as to strain off the liquid that emanates from them. From these pans they are carefully placed by hand into the cans, which are filled as solidly as possible—in other words, all are put in that the cans will hold. They are then put through the usual process, and hermetically sealed. The cans, when opened for use, present the tomato not only like the natural vegetable in taste and color, but also in appearance; and moreover, when thus sealed, they are warranted to keep in any climate, and when opened will taste as natural as when just plucked from the vine.

How to Clarify Tallow.—Dissolve one pound of alum in one quart of water, add to this 100 pounds of tallow in a jacket kettle (a kettle set in a larger one, and the intervening space filled with water; this prevents burning the tallow). Boil three-quarters of an hour and skim. Then add one pound of salt dissolved in a quart of water. Boil and skim. When well clarified the tallow should be nearly the color of water.

How to Harden Tallow.—We have used the following mixture with success: To one pound of tallow take one-fourth of a pound common rosin; melt them together, and mold them the usual way. This will give a candle of superior lighting power, and as hard as a wax candle; a vast improvement upon the common tallow candle in all respects except color.

How to Make Tomato Catsup.—Take of perfectly ripe tomatoes ½ bushel; wash them clean and break to pieces; then put over the fire and let them come to a boil, and remove from the fire; when they are sufficiently cool to allow your hands in them, rub through a wire sieve; and to what goes through, add salt 2 tea-cups; allspice and cloves, ground, of each, 1 teacup; best vinegar 1 quart. Put on to the fire again and cook one hour, stirring with great care to avoid burning. Bottle and seal for use. If too thick when used put in a little vinegar. If they were very juicy they may need boiling over an hour.

How to Keep Vegetables.—Sink a barrel two-thirds of its depth into the ground (a box or cask will answer a better purpose); heap the earth around the part projecting out of the ground, with a slope on all sides; place the vegetables that you desire to keep in the vessel; cover the top with a water-tight cover; and when winter sets in, throw an armful of straw, hay, or something of that sort, on the barrel. If the bottom is out of the cask or barrel, it will be better. Cabbages, celery, and other vegetables, will keep in this way as fresh as when taken from the ground. The celery should stand nearly perpendicular, celery and earth alternating. Freedom from frost, ease of access, and especially freshness, and freedom from rot, are the advantages claimed.

How to Keep Yeast.—Ordinary beer yeast may be kept fresh and fit for use for several months, by placing it in a close canvas bag, and gently squeezing out the moisture in a screw press, the remaining matter becomes as stiff as clay, in which state it must be preserved in close vessels.

Yeast Cakes, or Preserved Yeast.—Put a large handful of hops into two quarts of boiling water. Boil three large potatoes until they are tender. Mash them and add them to two pounds of flour. Pour the boiling hot water over the flour through a sieve or colander, and beat it until it is quite smooth. While it is warm, add two tablespoonfuls of salt, and half a teacupful of sugar. Before it is quite cold, stir in a pint or more of good yeast. After the yeast has become quite light, stir in as much Indian meal as it will take, roll it out in cakes, and place them on a cloth in a dry place, taking care to turn them every day. At the end of a week or ten days they may be put into a bag and should be kept in a dry place. When used, take one of these cakes, soak it in some milk-warm water, mash it smooth, and use it as any other kind of yeast.

How to Make Cider Vinegar.—1. The most profitable return from such apples as are made into cider is the further transformation of the juice into vinegar. To do this, the barrels should be completely filled, so that all impurities that "working"—fermenting—throws off will be ejected through the bung-hole. This process should be completed before the barrel is put in the cellar, and when this is done, the purified juice should be drawn out of the original cask and put into others where there is a small amount of old vinegar, which will amazingly hasten the desired result. If no vinegar can be obtained to "start" the cider, it must remain in a dry cellar six months, and perhaps a year (the longer the better), before it will be fit for the table.

2. Save all your apple parings and slice in with them all waste apples and other fruits; keep them in a cool place till you get a pailful, then turn a large plate over them, on which a light weight should be placed, and pour on boiling water till it comes to the top. After they have stood two or three days pour off the liquid, which will be as good cider as much that is offered for sale; strain and pour it into a cask or some other convenient vessel (anything that can be closely covered will do), and drop in a piece of "mother," or vinegar plant, procured of some one that has good

vinegar. If set in a warm place, the vinegar will be fit for use in three or four weeks, when it can be drawn off for use, and the cask filled with cider made from time to time by this process. The parings should be pressed compactly into a tub or pail, and only water enough poured over to come to their surface, otherwise the cider would be so weak as to require the addition of molasses. By having two casks, one to contain the vinegar already made, and the other to fill into from time to time, one never need be without good vinegar. The rinsings of preserve kettles, sweatmeat jars, and from honey, also stale beer and old cider, should all be saved for the vinegar cask; only caution should be used that there be sufficient sweetness or body to whatever is poured in, or the vinegar may die from lack of strength.

3. A barrel or a cask of new sweet cider, buried so as to be well covered with fresh earth, will turn to sharp, clear, delicious vinegar in three or four weeks, as good as ever sought affinity with cabbage, pickles, or table sauce, and better than is possible to make by any other process.

How to Preserve Pickles.—The strongest vinegar must be used for pickling; it must not be boiled, or the strength of the vinegar and spices will be evaporated. By parboiling the pickles in brine they will be ready in much less time than they are when done in the usual manner, of soaking them in cold water for six or eight days. When taken out of the hot brine, let them get cold and quite dry before you put them into the pickle.

To assist the preservation of pickles, a portion of salt is added, and for the same purpose, and to give flavor, long pepper, black pepper, allspice, ginger, cloves, mace, eschalots, mustard, horse radish and capsicum.

The following is the best method of preparing the pickle, as cheap as any, and requires less care than any other way: Bruise in a mortar four ounces of the above spices, put them into a stone jar with a quart of the strongest vinegar, stop the jar closely with a bung, cover that with a bladder soaked with pickle, set it on a trivet by the side of the fire for three drys, well shaking it up at least three times in the day; the pickle should be at least three inches above the pickles. The jar being well closed, and the infusion being made with a mild heat, there is no loss by evaporation.

To enable the articles pickled more easily and speedily to imbibe the flavor of the pickle they are immersed in, previous to pouring it on them, run a larding-pin through them in several places.

Pickles should be kept in a dry place in unglazed earthenware or glass jars, which are preferable, as you can, without opening them, observe whether they want filling up; they must be carefully stopped with well-fitted bungs, and tied over as closely as possible with a bladder wetted with the pickle; and if it be preserved a long time after that is dry, it must be dipped in bottle cement.

When the pickles are well used, boil up the liquor with a little fresh spice.

To walnut liquor may be added a few anchovies and eschalots; let it stand till it is quite clear, and bottle it; thus you may furnish the table with an excellent savory-keeping sauce for hashes, made dishes, fish, etc., at very small cost.

Jars should not be more than three parts filled with the articles pickled, which should be covered with pickle at least two inches above their surface; the liquor wastes, and all of the articles pickled that are not covered are soon spoiled.

When they have been done about a week, open the jars and fill them up with pickle.

Tie a wooden spoon, full of holes, round each jar, to take them out with.

If you wish to have gherkins, etc., very green, this may be easily accomplished by keeping them in vinegar, sufficiently hot, till they become so.

If you wish cauliflowers, onions, etc., to be white, use distilled vinegar for them.

To entirely prevent the mischief arising from the action of the acid upon the metallic utensils usually employed to prepare pickles, the whole of the process is directed to be performed in unglazed stone jars.

How to Pickle Beets.—Boil your beets till tender, but not quite soft. To four large beets, boil three eggs hard and remove the shells; when the beets are done, take off the skin by laying them for a few minutes in cold water, and then stripping it off; slice them a quarter of an inch thick, put the eggs at the bottom, and then put in the beets with a little salt. Pour on cold vinegar enough to cover them. The eggs imbibe the color of the beets and look beautiful on the table.

Beet-Root, Pickled.—Simmer the roots till three parts done (from one and a half to two and a half hours); then take them out, peel and cut them in thin slices. Put them into a jar, and pour on sufficient cold spiced vinegar to cover them.

Cabbage, Pickled.—Choose a fine, close cabbage for the purpose of pickling, cut it as thin as possible, and throw some salt upon it. Let it remain for three days, when it will have turned a rich purple; drain from it the salt, and put it into a pan with some strong vinegar, a few blades of mace, and some white pepper-corns. Give it a scald, and when cold, put it into the jars, and tie it up close.

Cucumbers, Pickled.—Make a brine by putting one pint of rock salt into a pail of boiling water, and pour it over the cucumbers; cover tight to keep in the steam, and let them remain all night and part of a day; make a second brine as above, and let them remain in it the same length of time; then scald and skim the brine, as it will answer for the third time, and let them remain in it as above; then rinse and wipe them dry, and add boiling hot vinegar; throw in a lump of alum as large as an oil-nut to every pail of pickles, and you will have a fine, hard and green pickle; add spices if you like, and keep the pickles under the vinegar. A brick on the top of the cover, which keep the pickles under, has a tendency to collect the scum to itself, which may arise.

Cherries Pickled.—Take the largest and ripest red cherries, remove the stems, have ready a large glass jar, fill it two-thirds full with cherries, and fill up to the top with the best vinegar; keep it well covered, and no boiling or spice is necessary, as the cherry flavor will be retained, and the cherries will not shrivel.

Chopped Pickles.—What we call chopped pickle goes also under the name of chow-chow, picklette, higdum, etc. It is liked by most persons, is readily made, and admits of the use of a number of articles. There is no particular rule for making it, and the bases may be of whatever pickle-making material is most abundant. We have just put up our winter stock, and this time made it as follows: Green tomatoes furnished the largest share; then there were nearly ripe cucumbers with the seeds removed, cabbage, onions, and green-peppers. These were chopped in a chopping-machine, and mixed, sprinkled freely with salt, and allowed to stand until the next day. The abundant juice was then thoroughly drain off, and enough spiced vinegar prepared to cover the material. No rule can be given for the spice, which may be according to taste. Whole pepper, cloves, mustard-seed, broken cinnamon, or whatever spice is fancied, may be boiled in the vinegar. We prefer it with the addition of sugar. Some mix up mustard and add to the pickle when cold, and others boil

turmeric in the vinegar to give it a uniform yellow color. It is a pickle that can be made according to fancy rather than according to rule. In winter, cabbage, celery and onions, treated in the same way make a very fine pickle. As with other pickles, the vinegar should be poured off and boiled, at intervals of a few days, two or three times before it is put away for the winter.

Cauliflower and Broccoli.—These should be sliced, and salted for two or three days, then drained, and spread upon a dry cloth before the fire for twenty-four hours; then put into a jar and covered with spiced vinegar. Dr. Kitchener says, that if vegetables are put into cold salt and water (a quarter of a pound of salt to a quart of water), and gradually heated to boiling, it answers the same purpose as letting them lie some days in salt.

Crab-Apple, Sweet, Pickled.—Boil the fruit in clear water until it becomes a little soft; then drain them on a large dish; then to every pound of fruit add one of sugar, and boil hard until they are preserved.

To make the pickles, take one-half syrup and one-half vinegar; fill the jar with the preserves, and pour on the syrup and vinegar; add spices to suit the taste.

Gherkins, Pickled.—Steep them in strong brine for a week, then pour it off, heat it to a boiling point, and again pour it on the gherkins; in twenty-four hours drain the fruit on a sieve, put it into wide-mouthed bottles or jars, fill them up with strong pickling vinegar, boiling hot, bung down immediately, and tie over with a bladder. When cold, dip the corks into melted bottle wax. Spice is usually added to the bottles, or else steeped in the vinegar.

In a similar way are pickled: onions, mushrooms, cucumbers, walnuts, samphires, green gooseberries, cauliflowers, melons, barberries, peaches, lemons, tomatoes, beans, radish pods, codlins, red cabbage (without salt and with cold vinegar), beet-root (without salt), garlic, peas, etc., etc.; observing that the softer and more delicate articles do not require so long soaking in brine as the harder and coarser kinds, and may be often advantageously pickled by simply pouring very strong pickling vinegar over them, without applying heat.

Green-Ginger, Pickled.—Clean and slice the ginger; sprinkle with salt; let it remain a few hours; then put it into a jar or bottle, and pour boiling vinegar over it; cork it up when cool.

Limes, Pickled.—They should be small, and with thin rinds. Rub them with pieces of flannel, then slit them half down in four quarters, but not through to the pulp; fill the slits with salt, hard pressed in; set them upright in a pan for four or five days until the salt melts, turn them three times a day in their own liquor until tender; make a sufficient quantity of pickle to cover them, of vinegar, the brine of the lemons, pepper and ginger; boil and skim it, and when cold put it to the lemons with two ounces of mustard seed and two cloves of garlic to every six lemons. In boiling the brine care should be taken to use a well-tinned copper saucepan only, otherwise it will be discolored.

Mixed Piccalilli, Pickled.—To each gallon of strong vinegar put four ounces of curry powder, four ounces of good flower mustard, three ounces of bruised ginger, two ounces of turmeric, eight ounces of skinned shallots, and two ounces of garlic (the last two slighly baked in a Dutch oven), one-fourth pound of salt and two drachms of cayenne pepper. Digest these near the fire, as directed above for spiced vinegar. Put into a jar, gherkins, sliced cucumbers, sliced onions, button onions, cauliflower, celery, broccoli, French beans, nasturtiums, capsicums, large cucumbers, and small lemons. All, except the capsicums, to be parboiled in salt water, drained, and dried on a cloth before the fire. Pour on them the above pickle.

Mushrooms, Pickled.—To preserve the flavor, buttons must be rubbed with a piece of flannel and salt, and from the large ones take out the red inside, for when they are black they will not do, being too old. Throw a little salt over, and put them in a stewpan with some mace and white pepper; as the liquor comes out, shake them well, and simmer them over a gentle fire till all of it is dried into them again; then put as much vinegar into the pan as will cover them; make it warm, then put all into glass jars or bottles, and tie down with a bladder. They will keep two years, and are delicious.

Mixed Pickles.—One large white cabbage, beans, green tomatoes, gherkins and green pepper (the veins to be cut out), without regard to quantity; chop them up finely, and place in separate vessels; salt them, and let them stand twenty-four hours; squeeze them through a sieve, mix all together, and flavor with mustard-seed spice, cloves, black pepper and horse-radish; pour on scalding vinegar; cut up two large onions and throw in, and let them stand twenty-four hours; then pour off the vinegar and fill up with cold.

Onions, Pickled.—Scald one gallon of small onions in salt water of the strength to bear an egg. Only just let them boil; strain them off, and peel them after they are scalded, place them in a jar, and cover them with the best cold vinegar. The next day pour the vinegar off, add two ounces of bruised ginger, one ounce of white pepper, two ounces of flour of mustard seed, half an ounce chillies; boil them twenty minutes, turn all together, boiling hot, to the onions; let them remain ten days, turn the vinegar out again, boil as before, turn them hot on the onions again. They will be ready for use as soon as quite cold.

How to make Peach Pickles.—Take any quantity of fine peaches just before they are ripe, stick into each five or six cloves: make a syrup of three pints of vinegar and three pounds of peaches; add cinnamon if you like. Bring the syrup to a boil, and pour hot over them; repeat the process for three days, or until they are shrunk on the pit. After the last scald they should be well covered and put away in a very cool cellar until cold weather sets in. They will be ready to use, however, in a few days after they are pickled.

How to Color Pickles Green.—A beautiful green color, entirely destitute of any poisonous qualities, may be made by dissolving five grains of saffron in one-fourth ounce distilled water; and in another vessel dissolving four grains of indigo carmine in one-half ounce distilled water. After shaking each up thoroughly they are allowed to stand for twenty-four hours, and on being mixed together at the expiration of that time, a fine green solution is obtained, capable of coloring five pounds of sugar.

How to Pickle Peppers.—Soak fresh, hard peppers in salt and water for nine days, in a warm place, changing the brine every day; then put them in cold vinegar. If the pickles are not required very hot, take out the seeds from the greater portion of the peppers.

How to Pickle Sweet Plums.—Take seven pounds of fruit, put them in a jar with three and one-half pounds of sugar, one quart best vinegar, two ounces stick cinnamon, two ounces cloves; the whole boiled together and thrown over the fruit three days.

How to Pickle Roots.—Roots, such as carrots, salsify and beet-root, may be pickled by being sliced, or cut into small pieces; and slightly boiled in vinegar without destroying their crispness, and adding the common spices; with beet-root, put button onions, or cut some Spanish onions in slices, lay them alternately in a jar; boil one quart of

vinegar with one ounce of mixed pepper, half an ounce of ginger, and some salt, and pour it cold over the beet-root and onions.

How to make Sweet Pickles.—For pickling all kinds of fruit to keep good the year round, the following rule is safe: To three pounds of sugar add one pint of good vinegar, spices to your taste; boil it together, then let it cool; fill the jars with clean and sound fruit, such as peaches, pears, plums, cherries and grapes (each kind in a separate jar); then, when the vinegar is cool, put it on the fruit; let is stand all night, then turn off the liquor, and boil it down a little; then let it cool, and pour it in the jars; cover them nicely, and put them in a cool place. If, in time you discover a white scum on the top, skim it off, turn off the vinegar, add a little sugar, and boil it; when cool, pour it on the fruit again, and you will have a delightful pickle.

For peach mangoes, these are excellent. Take sound, ripe, free-stone peaches; wipe off the fur; split them open; take out the pits; have ready some fine chopped tomatoes, cabbage, horse-radish, and mustard-seed; fill the vacancy in the peach; then place them together, and tie them with a string; fill your jars with prepared vinegar.

How to Pickle Tomatoes.—Always use those which are thoroughly ripe. The small, round ones are decidedly the best. Do not prick them, as most recipe-books direct. Let them lie in strong brine three or four days, then put them down in layers in your jars, mixing with them small onions and pieces of horse-radish; then pour on the vinegar (cold), which should be first spiced as for peppers; let there be a spice-bag to throw into every pot. Cover them carefully, and set them by in a cellar for a full month before using.

How to Pickle Green Tomatoes.—To one peck of tomatoes add a handful of salt, and enough water to cover them. Let them remain in this twenty-four hours. Put them in a kettle (porcelain-lined is the best), fill up with vinegar, and set upon the stove until the vinegar begins to boil, then set away to cool. When cold, set the kettle again upon the stove, and bring it to the boiling point. Then skim the tomatoes, and put them into a jar; fill up with some new, cold vinegar, and flavor with mustard-seed, allspice, cloves, etc.

The same vinegar first used will do to scald more tomatoes in.

Hints on Preserving.—A very common discovery made by those who preserve fruits, etc., is, that the preserve either ferments, grows moldy, or becomes candied.

These three effects arise from three separate causes. The first from insufficient boiling; the second from being kept in a damp place, assisted in some degree by the first cause; and the third from being two quick and too long in boiling.

Preserves of all kinds should be kept entirely secluded from the air, and in a dry place. In ranging them on the shelves of a store-closet, they should not be suffered to come in contact with the wall. Moisture in winter and spring exudes from some of the driest walls, and preserves invariably imbibe it, both in dampness and taste. It is necessary occasionally to look at them, and if they have been attacked by mold boil them up gently again. To prevent all risks it is always as well to lay a brandy paper over the fruit before tying down. This may be renewed in the spring.

Fruit jellies are made in the ratio of a quart of fruit to two pounds of sugar. They must not be boiled quick, nor very long. Practice, and a general discretion, will be found the best guide to regulate the exact time, which must necessarily be affected, more or less, by local causes.

How to Preserve Fruits without Self-Sealing Cans.—Prepare a cement of one ounce resin, one ounce gum shellac, and a cubic inch of beeswax; put them in a tin cup and melt slowly; too high or too quick heat may cause it to scorch.

Place the jars where they will become warm while the fruit is cooking. If they are gradually heated there is no danger of breaking.

As soon as the fruit is thoroughly heated, and while boiling hot, fill the jars full, letting the juice cover the fruit entirely. Have ready some circular pieces of stout, thick cotton or linen cloth, and spread over with cement a piece sufficient to cover the mouth and rim of the jar. Wipe the rim perfectly dry, and apply the cloth while warm, putting the cement side down, bring the cover over the rim, and secure it firmly with a string; then spread a coating of cement over the upper surface. As the contents of the jar cool, the pressure of the air will depress the cover, and give positive proof that all is safe.

How to Preserve Small Fruits Without Cooking.—Strawberries, raspberries, blackberries, cherries and peaches can be preserved in this manner: Lay the ripe fruit in broad dishes, and sprinkle over it the same quantity of sugar used in cooking it. Set it in the sun, or a moderately heated oven, until the juice forms a thick syrup with the sugar. Pack the fruit in tumblers, and pour the syrup over it. Paste writing paper over the glasses, and set them in a cool, dry place. Peaches must be pared and split, and cherries stoned. Preserved in this manner, the fruit retains much more of its natural flavor and healthfulness than when cooked.

How to Preserve Fruits without Sugar or Vinegar.—Pick the fruit from the stalks; put them into the bottles. Put one drachm of alum into four gallons of boiling water; let it stand till it is cold; then fill the bottles with this liquor, bung them tight, put them into a copper of cold water, and heat to 176°; and then tie them over with bladder and seal them.

How to Preserve Fruits by Syrup without Heat.—Many fruits when preserved by boiling lose much of their peculiar and delicate flavor, as for instance pineapples; and this inconvenience may, in some instances, be remedied by preserving them without heat. Cut the fruit in slices, about one-fifth of an inch thick; strew powdered loaf-sugar an eighth of an inch thick in the bottom of a jar, and put the slices on it. Put more sugar on this, and then another layer of the slices, and so on, till the jar is full. Place the jar with the fruit up to the neck in boiling water, and keep it there until the sugar is completely dissolved, which may take half an hour, removing the scum as it rises. Lastly tie a wet bladder over the mouth of the jar, or cork and wax it.

How to Preserve Apples.—Pare and core and cut them in halves or quarters; take as many pounds of the best brown sugar; put a tea-cup of water to each pound. When it is dissolved set it over the fire; and when boiling hot put in the fruit and let it boil gently until it is clear and the syrup thick; take the fruit with a skimmer on to flat dishes; spread it to cool; then put it in pots or jars and pour the jelly over. Lemons boiled tender in water and sliced thin may be boiled with the apples.

How to Preserve Crab Apples.—Take off the stems and core them with a sharp knife without cutting them open; weigh a pound of white sugar for each pound of apples; put a tea-cup of water to each pound of sugar, and then put it over a slow fire. When the sugar is dissolved and hot put the apples in; let them boil gently until they are clear, then skim them, cut and spread them on flat dishes. Boil the syrup until it is thick; put the syrup in whatever

they are to be kept, and when the syrup is cold and settled, pour it carefully over the fruit. Slices of lemon boiled with the fruit is to some an improvement; one lemon is sufficient for several pounds of fruit. Crab apples may be preserved whole with three-quarters of an inch of stem on, three-quarters of a pound of sugar for each pound of fruit.

How to Preserve Whole Apricots.—Take the largest and cleanest apricots to be got; pick out the stones with a silver skewer, or slit them down the sides with a silver knife; take nearly their weight in good lump sugar; dip each lump in water and put over the fire; let it just boil; skim and put by till cold; then pour it over the fruit in the preserving-can, warm very gently and only allow them to simmer; then put them by till next day, and warm them again; continuing this till they look clear; then take the fruit from the syrup. The latter must now be well boiled and skimmed, and when cold poured over the fruit.

How to Preserve Citron Melon.—Pare, core and cut into slices some fine citron melons. Weigh them. To six pounds of melon allow six pounds of refined sugar, the juice and grated rind of four large lemons, and a quarter pound of root ginger. Boil the slices of melon half an hour or more, till they look quite clear and are so tender that a broom straw will pierce them. Then drain them, lay them in a pan of cold water, cover them, and let them stand all night. In the morning tie the root ginger in a thin muslin cloth, and boil it in three pints of clear water till the water is highly flavored; take out the bag of ginger and pour the water over the pieces of sugar, which is previously broken and put in a preserving kettle. When the sugar is melted, set it over the fire, put in the grated peel of the lemons and boil and skim it till no more scum rises. Then put in the sliced citrons and the juice of the lemons; boil them in the syrup till all the slices are quite transparent, and so soft that a straw will go through them, but do not break them. When done put the slices, still warm, into jars, and gently pour over the syrup. This will be found delicious.

How to Preserve Cucumbers to Imitate Ginger.—Take small cucumbers, with flowers and stalks on them, and some large ones gathered dry; put them in a stone jar with salt and water enough to cover them; then put cabbage leaves on the top to cover them close, and set them in the chimney corner for a fortnight, until they are turned yellow; then drain the water away and throw away the cabbage leaves, which will smell very strong, almost to putrefaction; split the large ones, take out the seed, put them in an earthen pipkin over the fire with weak salt and water; cover them close, and let them green gently for ten hours, when they will look a little green, and are very clean; take them off the fire and drain them, and put them into cold water, shifting them twice a day for two days; then drain them and dry them in a fine cloth. Have ready a thin syrup with a good deal of whole ginger boiled in it, and some lemon peel; when it is cold put it on the cucumber. Boil up the syrup every day for a fortnight, and when it is cold pour it on as before. Tie them down with a bladder, and a leather and a paper under it, and keep them in a cool, dry place. A pint of water to a pound of sugar is a good proportion for the syrup.

How to Preserve Whole Seville Oranges.—Cut a hole at the stem end of the oranges the size of a half dime, take out all the pulp, put the oranges into cold water for two days, changing it twice a day; boil them rather more than an hour, but do not cover them, as it will spoil the color; have ready a good syrup, into which put the oranges, and boil them till they look clear; then take out the seeds, skins, etc., from the pulp first taken out of the oranges, and add to it one of the whole oranges previously boiled, with an equal weight of sugar to it and the pulp; boil this together till it looks clear over a slow fire, and, when cold, fill the oranges with this marmalade, and put on the tops; cover them with syrup, and put brandy paper on the top of the jar. It is better to take out the inside at first, to preserve the fine flavor of the juice and pulp, which would be injured by boiling in the water.

How to Preserve Grapes in Bunches.—Take out the stones from the grapes with a pin, breaking them as little as possible; boil some clarified sugar nearly to candy height; then put in sufficient grapes to cover the bottom of the preserving-pan, without laying them on each other. and boil for five minutes, merely to extract all the juice; lay them in an earthen pan, and pour the syrup over them; cover with paper, and the next day boil the syrup, skimming it well for five minutes; put in the grapes, let them boil a minute or two; put them in pots, and pour the syrup over them, after which tie down.

How to Preserve Imitation of Ginger.—Boil, as if for the table, small, tender, white carrots; scrape them until free from all spots, and take out the hearts. Steep them in spring water, changing it every day, until all vegetable flavor has left them. To every pound of carrots so prepared add one quart of water, two pounds of loaf sugar, two ounces of whole ginger, and a rind of lemon shred fine. Boil for a quarter of an hour every day, until the carrots clear, and when nearly done, add red pepper to taste. This will be found a good imitation of West Indian preserved ginger.

How to Preserve Melon like Ginger.—When the melon is nearly ripe, pare it thin, and cut it into pieces about the size of ginger; cover it with salt water, changing every day for three days; then put in clear spring water, changing it twice a day for three days. Then make a thin syrup, and boil it together with the melon once a day for three days; next make a thick syrup, adding the rind of one or more lemons, according to the quantity of melon, cut into narrow strips, and the juice squeezed in; then add some best white ginger, with the outside cut off, so as to make the syrup strong of the ginger. This should be boiled, and when cold put to the melon.

How to Preserve Currants.—Take ripe currants, free from stems; weigh them, and take the same weight of sugar; put a tea-cup of sugar to each pound of it; boil the syrup until it is hot and clear; then turn it over the fruit; let it remain one night; then set it over the fire and boil gently, until they are cooked and clear; take them into the jars or pots with a skimmer; boil the syrup until rich and thick; then pour it over the fruit. Currants may be preserved with ten pounds of fruit to seven of sugar. Take the stems from seven pounds of the currants, and crush and press the juice from the remaining three pounds; put them into the hot syrup and boil until thick and rich; put it in pots or jars, and the next day secure as directed.

How to Preserve Cherries.—Take fine large cherries, not very ripe; take off the stems and take out the stones; save whatever juice runs from them; take an equal weight of white sugar; make the syrup of a tea-cup of water for each pound; set it over the fire until it is dissolved and boiling hot; then put in the juice and cherries; boil them gently until clear throughout; take them from the syrup with a skimmer and spread them on flat dishes to cool; let the syrup boil until it is rich and quite thick; set it to cool and settle; take the fruit into jars or pots and pour the syrup carefully over; let them remain open until the next day; then cover as directed. Sweet cherries are improved by the addition of a pint of red currant juice and a half pound of sugar to it for four or five pounds of cherries.

How to Preserve Damsons.—Put a quart of damsons into a jar with a pound of sugar strewed between them;

set the jar in a warm oven, or put it into a kettle of cold water and set it over the fire for an hour, then take it out, set to become cold, drain the juice off, boil it until it is thick, then pour it over the plums; when cold, cover as directed for prescrves.

How to Preserve Dewberries.—Pick your berries early in the morning, weigh them, then spread them on dishes, sprinkle them with sugar in the due proportion assigned them (pound for pound). When the juice settles from them in the dishes, pour it off, and with it moisten the remainder of the sugar; simmer this over a slow fire, and, while simmering, drop in a portion of the berries; let them become clear, and return them to the dishes to cool, while the remainder takes their place in the kettle. When all are clear, and the syrup boiled down to a rich consistency, pour it over them, and when cool enough, transfer them to glass jars.

How to Preserve Greengages.—Select well-grown greengages, but not the least ripe; prick them with a fork to the stone, and as soon as pricked, put them in water in a preserving-pan. When they are all done, put them over a slow fire to simmer very gently, so as to make them tender without breaking; try them with a fork, and when tender to the stone, put them in cold water, and as some will get soft before others they must be watched carefully; let them lie in water a day and a night; strain them, and when well drained, put them in an earthen pan, and pour over them some boiling hot clarified sugar sufficient to cover them; put a paper over them; the next day pour off the syrup and boil it; if three quarts or thereabouts, boil for ten minutes, then pour it over the fruit, and again lay the paper over them. Boil the syrup every other day in the same manner until it is about the consistence of cream (in five or six boilings). If the syrup shrinks, so as not to keep the fruit well covered, add a fresh supply. While boiling the syrup the third time, put the greengages in, and let them simmer gently for a short time, which will bring them green; and the last time of boiling the syrup, let them simmer a little in it.

How to Preserve Gooseberries.—Take full-grown gooseberries before they are ripe, pick them and put them in wide-mouthed bottles; cork them gently with new, soft corks, and put them in an oven from which the bread has been drawn; let them stand till they have shrunk nearly a quarter, then take them out and beat the corks in tight; cut them off level with the bottle and resin them down close. Keep in a dry place.

How to Preserve Grapes in Vinegar.—Grapes are preserved in vinegar by the Persians after the following fashion: The grapes are gathered when half ripe, and put into bottles half filled with vinegar, which so macerates them that they lose their hardness, and yet do not become too soft. The grapes have a sweet acid taste, which is not unpalatable, and is especially refreshing during the great heats.

How to Preserve Huckleberries.—The huckleberries may be easily kept for winter use by putting them in bottles or cans, without adding anything to them, and without cooking. The mouths of the cans should be tightly closed, and the cans should be buried mouth downward, in a box of sand. When taken out of the sand for use in the winter the color of the berries is slightly changed, but the shape and flavor is preserved in perfection. They make excellent pies.

How to Preserve Green Ginger.—Scrape and clean your green ginger well; to each pound of green ginger put a pint and a half of water; boil it down one-third; skim carefully while boiling, then strain off the liquid; add a pound of sugar-candy, and boil the ginger in it until quite tender.

How to Preserve Mushrooms.—The small open mushrooms suit best. Trim and rub them clean, and put into a stew pan a quart of the mushrooms, three ounces of butter, two teaspoonfuls of salt, and half a teaspoonful of cayenne pepper and mace mixed; stew until the mushrooms are tender; take them carefully out and drain them on a sloping dish. When cold, press into small pots, and pour clarified butter over them. Put writing paper over the butter, and on that pour melted suet, which will exclude the air, and preserve them for many weeks, if kept in a dry, cool place.

How to Preserve Mock Ginger.—Cut off the stocks of lettuce just going to seed, and peel off the strings, cut them in pieces two or three inches long, and throw them into water; after washing them, put them into sugar and water, mixed in the proportion of one pound of sugar to five pints of water, add to this quantity two large spoonfuls of pounded ginger. Boil the whole together for twenty minutes, and set it by for two days. Then boil it again for half an hour, and renew this five or six times in the same syrup. Then drain the stalks upon a sieve, and wipe them dry; have ready a thick syrup boiled, and make strong with whole ginger. Pour it upon the stalks boiling hot, boil them in it once or twice, or until they look clear, and taste like the West-India ginger.

How to Preserve Orange-peel.—Clean carefully; cut in thin strips; stew in water until the bitterness is extracted; drain off the water and stew again for half an hour in a syrup of sugar and water, allowing a half-pint of water and a pound of sugar to each pound of peel. Put it aside in jars, and keep it in a cool place. If desired, a little cinnamon and ginger may be stewed with the peel, but it is more delicately cooked simply with sugar. Lemon peel may be prepared in the same manner, either alone or mixed with orange-peel. These form pleasant "relishes" eaten with cake or bread, or if chopped finely when prepared, they form excellent flavoring for puddings and pies.

How to Preserve Pears.—Take six pounds of pears to four pounds of sugar, boil the parings in as much water as will cover them, strain it through the colander, lay some pears in the bottom of your kettle, put in some sugar, and so on, alternately, then pour the liquor off the pear-skins over, boil them until they begin to look transparent, then take them out, let the juice cool, and clarify it; put the pears in again, and add some ginger, prepared as in the above recipe; boil till done; let the liquor boil after taking them out, until it is reduced to a syrup.

How to Preserve Pine-Apple.—Choose ripe but sound ones, and cut them in slices about an inch in thickness, and cut off the rind. Weigh the slices, and to every two pounds of fruit put one pound and three quarters of sifted white sugar. Boil them together in a preserving-pan for thirty minutes, and if the slices are tender, take them out carefully with a wooden spoon, and place them on a wooden dish; boil the syrup for a short time longer, and then pour it over the slices of pine-apple. This process must be repeated for three successive days, after which the preserves may be put into jars and covered.

How to Preserve Purple Plums.—Make a syrup of clean brown sugar; clarify it as directed in these recipes; when perfectly clear and boiling hot, pour it over the plums, having picked out all unsound ones and stems; let them remain in the syrup two days, then drain it off; make it boiling hot, skim it, and pour it over again; let them remain another day or two, then put them in a preserving kettle over the fire, and simmer gently until the syrup is

reduced, and thick or rich. One pound of sugar for each pound of plums. Small damsons are very fine, preserved as cherries or any other ripe fruit; clarify the syrup, and when boiling hot put in the plums; let them boil very gently until they are cooked, and the syrup rich. Put them in pots or jars; the next day secure as directed.

How to Preserve Peaches.—Take the peaches when ripe, pare them, and if you desire to preserve them whole, throw them into cold water as you pare them, to as to prevent them losing color. When you have everything ready, place the peaches in a can, adding as much sugar to each layer as will make them palatable. Then set the can in a vessel containing hot water, and allow it to remain in boiling water until the fruit becomes heated through. This will require, if a quart can be used, from twenty to thirty minutes. When heated sufficiently, seal at once by heating the cover and pressing it at once firmly into place, and allowing a weight sufficient to keep down the cover to remain upon it until the cement hardens. The proper temperature of the lid is easily and conveniently ascertained by putting a piece of resin, about the size of a small pea, on the cover when it is put on the stove; as soon as the resin melts, the cover is ready to put in place. This precaution is necessary, as the solder with which the parts of the lid are joined together easily melts. It is not absolutely necessary to use sugar in this process, but as it assists in the preservation of the fruit, they can be sealed at a lower temperature than if not used. As sugar is used to render the fruits palatable, there can be no objection to using it when preparing the fruit for family use, as it will, in any case, be necessary, and there is no reason why the sugar should not be used before the can is sealed.

If soft peaches are preferred, they should be cut up as if intended to be eaten with cream, and must not be placed in water. When ready, they should be put in cans and heated as described above. It is not necessary to heat them in the can, but a larger quantity may be more conveniently heated together and put into the cans or jars while hot and sealed. A flat stewpan, lined with porcelain, will be found well adapted to this purpose. It must not, of course, be placed directly over the fire, but in a vessel of water which is set directly on the fire. By this means soft peaches may readily and certainly be preserved for winter use in such condition as scarcely to differ at all from the fresh peach. A most delicious dessert may thus be secured much more readily and at less expense, and much more palatable than the ordinary preserve. This method of preserving fresh peaches has been fully tested and may be relied upon.

Quinces, Preserved, Whole or Half.—Into two quarts of boiling water, put a quantity of the fairest golden pippins, in slices not very thin, and not pared, but wiped clean. Boil them very quickly, close covered, till the water becomes a thick jelly; then scald the quinces. To every pint of pippin jelly, put one pound of the finest sugar; boil it and skim it clear. Put those quinces that are to be done whole into the syrup at once, and let it boil very fast; and those that are to be in halves by themselves; skim it, and when the fruit is clear, put some of the syrup into a glass to try whether it jellies, before taking it off the fire. The quantity of quinces is to be one pound of sugar and one pound of jelly, already boiled with the sugar.

Rhubarb, Preserved.—Cut without peeling or splitting, six pounds of ordinary-sized rhubarb into pieces about an inch long; put it in with the rind of a lemon, into the stewpan, in which must be about a tablespoonful of water to keep it from burning; let it boil till tender, then, with a strainer, take out the fruit, and add to the juice five pounds of sugar; boil this forty minutes, then again put in the fruit and boil ten minutes. This is a delicious preserve.

Raspberries, Preserved.—These may be preserved wet, bottled, or made jam or marmalade of, the same as strawberries. Raspberries are very good dried in the sun or in a warm oven. They are very delicious stewed for table or tarts.

Strawberries, Preserved.—Use ripe strawberries, but not soft. Make a syrup of one pound of sugar to a pound of berries. Sugar should be double-refined (though refined sugar will answer), as it makes the preserves have a more brilliant color than simply refined sugar. To each pound of sugar put a tea-cup of water; set it over a gentle fire and stir it until totally dissolved. When boiling hot put in the fruit, having picked off every hull and imperfect berry; then boil very gently in a covered kettle, until by cutting one open, you find it cooked through; that will be known by it having the same color throughout. Take them from the syrup with a skimmer, and spread them on flat dishes, and let them remain till cold; boil the syrup until quite thick; then let it cool and settle; put the fruit into jars or pots, and strain or pour the syrup carefully over, leaving the sediment which will be at the bottom of the pitcher. The next day cover with several papers wet with sugar boiled to candy; set them in a cool, airy place. Strawberries keep perfectly well made with seven pounds of sugar to ten of fruit. They should be done as directed above, and the syrup cooked quite thick. A pint of red currant juice and a pound of sugar for it to three pounds of strawberries, make the syrup very beautiful.

Tomatoes, Preserved.—Scald the tomatoes, take off the skins. Weigh the tomatoes, which must be full grown and ripe. Allow to every two pounds of the best brown sugar, a large spoonful of ground ginger, and the juice and rind of one large lemon. Mix the tomatoes and sugar and white of one egg together, and put in a porcelain kettle. Boil slowly till the scum ceases to appear; then add gradually the juice and grated rind of the lemons, and boil slowly for an hour or more. The tomatoes must all have burst by this time. When done take them off, and when cool put them in jars.

Walnuts, Preserved.—Pierce your nuts several times with a fork, and boil them in water until they begin to be tender; take them out of the water, and when cold make a hole through every one with a pretty large bodkin, and introduce a piece of candied lemon or citron. Make a syrup of brown sugar and a little water (the sugar to the weight of your nuts), and boil your nuts well until the sugar has penetrated to the center; then put them into preserving pots, filling them with a thick syrup, and tie them up like jellies.

Peaches, Canned, by the Cold Process.—Pare and halve the peaches. Pack them as closely as possible in a can without any sugar. When the can is full, pour in sufficient cold water to fill all the crevices between the peaches, and reach the top of the can. Let it stand long enough for the water to soak into all the crevices—say five hours—then pour in water to replace what has sunk away. Seal up the can, and all is done. Peaches preserved in this way retain all their freshness and flavor. There will not be enough water in them to render them insipid. If preferred, a cold syrup could be used instead of pure water, but the peaches taste most natural without any sweetening.

Fruit, in Brandy.—Gather your fruit before it is quite ripe; prick them with a pin on each side; put them into a stewpan of fresh spring water, and stew them gently until you can pass a pin with facility to the stone of the fruit, when take them from the pan and put them to drain on a sieve. Whilst draining, prepare a syrup, which, when the

fruit is nicely arranged in a tureen, should be thrown on it boiling hot, and so left for twenty-four hours, when the fruit is again put to a drain, and the syrup boiled for one hour, and poured boiling hot all over the fruit once more. On the third day arrange the fruit in the preserving pots, and boil the syrup to a proper consistency; when cool mix it with brandy, in the proportion of two-thirds syrup to one-third brandy, and pour it over the fruit.

How to Bottle Fruit.—Cherries, strawberries, scliced pineapples, plums, apricots, gooseberries, etc., may be preserved in the following manner, to be used as fresh fruit: Gather the fruit before it is very ripe: put it in wide mouthed bottles made for the purpose; fill them as full as they will hold, and cork them tight; seal the corks; put some hay in a large saucepan; set in the bottles with hay between them to prevent their touching; then fill the saucepan with water to the necks of the bottles, and set it on the fire until the water is nearly boiling, then take it off; let it stand until the bottles are cold; then keep them in a cool place until wanted, when the fruit will be found equal to fresh.

How to Keep Fruit Fresh in Jars.—We advise the use of self-sealing glass jars. Put the fruit in a porcelain-lined preserving kettle, sufficient to fill four quart jars; sprinkle on sugar, one-half pound, place over a slow fire and heat through, not boiled. While the fruit is being heated, keep the jars filled with moderately hot water. As soon as the fruit is ready, empty the water from the jars, fill to the brim with fruit, and seal immediately. As it cools a vacuum is formed, which prevents bursting. In this way every kind of fruit will retain its flavor. Sometimes a thick, leathery mold forms on the top—if so all the better. The plan of keeping the jars full of hot water is merely to prevent the danger of cracking when the hot fruit is inserted. Some prefer to set the bottles full of cool water in a boiler of water, and heating all together gradually · but the other way is much simpler and equally effective.

Jam.—Let the jam be drawn on a dry day; wipe the fruit clean, but do not wash it; peel off the skin and coarse fibres, and slice the fruit thin. To each pound thus prepared allow a pound of fine sugar in fine powder; put the fruit in a pan, and stew a quarter of the sugar amongst it and over it; let it stand until the sugar is dissolved, when boil it slowly to a smooth pulp; take it from the fire, and stir in the remainder of the sugar by degrees; when it is dissolved, boil the preserve quickly until it becomes very thick, and leaves the bottom of the pan visible when stirred. The time required for preserving this preserve will depend on the kind of fruit used, and the time of year it is made. It will vary from an hour to two hours and a quarter. The juice should be slowly drawn from it first.

How to Put Up Jam while Hot.—It is said that ordinary jam—fruit and sugar which have been boiled together some time—keeps better if the pots into which it is poured are tied up while hot. If the paper can act as a strainer, in the same way as cotton wool, it must be as people suppose. If one pot of jam be allowed to cool before it is tied down, little germs will fall upon it from the air, and they will retain their vitality, because they fall upon a cool substance; they will be shut in by the paper and will soon fall to work decomposing the fruit. If another pot, perfectly similar, be filled with a boiling-hot mixture, and immediately covered over, though, of course, some of the outside air must be shut in, and germs which are floating in it will be scalded, and in all probability destroyed, so that no decomposition can take place.

Jelly.—To make a quart, soak one ounce of gelatine in a pint of cold water for twenty minutes, then add the same quantity of boiling water, stir until dissolved; add the juice and peel of two lemons, with enough sugar to sweeten; have ready, well beaten, the white and shell of one egg; stir these briskly into the jelly, then boil for two minutes without stirring it; remove it from the fire and allow it to stand twenty minutes; then strain through a coarse flannel bag; this jelly may be flavored or colored according to taste.

How to Make Jelly Custard.—To one cupful of any sort of jelly, add one egg, and beat well together with three teaspoonfuls of cream or milk. After mixing thoroughly, bake in a good crust.

How to Make Jelly with Fruit in.—Put in a basin a half pint of calf's foot jelly, and when it has become stiff, lay in a bunch of grapes, with the stalks upwards, or fruit of any kind; over this put a few vine leaves, and fill up the bowl with warm jelly; let it stand till next day, and then set the bowl in water up to the brim for a moment; then turn out carefully. It is an elegant looking dish.

How to Make Jelly with Gelatine.—Take two ounces and three-quarters of gelatine, dissolved in about a quart of water, four lemons, one pound of loaf sugar, nearly half a bottle of raisin wine, or a little brandy, and less of the wine; a little white of egg is necessary to clear it, as the egg takes from the stiffness of the jelly. Boil together, strain through a jelly-bag, and put into a mold.

How to Make Isinglass Jelly.—Two ounces of isinglass to a quart of water; boil till it is dissolved; strain it into a basin upon a slice of lemon peel pared very thin, six cloves and three or four lumps of sugar; let this stand by the fire for an hour; take out the lemon and cloves, and then add four tablespoonfuls of brandy.

How to Color Jelly.—To color jelly red, boil fifteen grains of cochineal, in the finest powder, with a drachm and a half of cream of tartar, in half a pint of water, very slowly half an hour. Add, in boiling, a bit of alum the size of a pea.

How to Preserve Jellies from Mold.—Cover the surface one-fourth of an inch deep with fine pulverized loaf sugar. When thus protected, the jellies will keep for years in good condition, and free from moldiness.

Marmalade.—Pare and cut up the fruit in small pieces, and to a pound of fruit add a pound of sugar. When the sugar is dissolved, set it over the fire, and let it boil till it is a smooth paste. Stir it all the time it is boiling. If you wish to flavor, add any essence you desire. Put it in the jars while warm, and paste them over the next day.

How to Make Apple Wine.—Take pure cider made from sound ripe apples as it runs from the press; put sixty pounds of common brown sugar into fifteen gallons of the cider, and let it dissolve, then put the mixture into a clean barrel, and fill the barrel up to within two gallons of being full, with clean cider: put the cask in a cool place, leaving the bung out for forty-eight hours; then put in the bung, with a small vent, until fermentation wholly ceases, and bung up tight; and in one year the wine will be fit for use. This wine requires no racking; the longer it stands upon the lees, the better.

How to Make Apricot Wine.—Wipe clean and cut twelve pounds of apricots; boil them in two gallons of water till the water has imbibed the flavor of the fruit, then strain the liquor through a hair sieve, and to each quart of it put six ounces of loaf sugar; then boil it and add six pounds sugar and one pound of sliced beet-root. When fermented, put into the cask a quart or more of brandy or flavorless whisky.

How to Make Blackberry Wine.—Gather the berries when perfectly ripe, and in such a manner as to avoid

bruising. Empty them, as fast as gathered, into a tub until you have a quantity sufficient to fill, with juice, the cask in which you propose to make the wine.

Have the utensils, etc., required in the process all ready before you pick—or at least before you mash your berries. Everything must be scrupulously clean. You want a keg, a beater of seasoned hard wood, a pail, a large bowl, tureen or other vessel into which to strain your juice, a good thick strainer—two or three folds of fine white flannel is the best material—a couple of yards of Osnaburgs, a spare tub or a bucket or two, and a tub of soft spring water. Everything must be perfectly clean and free from dirt or odor of any kind.

Crush the berries thoroughly with the beater, and then after straining the liquor, which runs freely from the pulp through the folded flannel, empty it into the cask, measuring it as you put it in. When the juice has been all drained from the pulp, you proceed to press the pulp dry. If the quantity is large, this had best be done by a regular press, but if only a few gallons are wanted, the Osnaburg answers very well. Stretch out the Osnaburg, put a gallon or a gallon and a half of the pulp into the center, fold the cloth over it on each side, and let a strong hand at either end twist the cloth with all their strength; when the juice is well pressed out, remove and lay aside the cake of pomace, and put in more pulp. This process is apparently rough, but is both rapid and effectual. The juice so extracted is strained and measured into the cask as before mentioned. The flannel strainer and the Osnaburg may need rinsing occasionally during the work.

When all the pulp is pressed, put the hard cakes of pomace taken from the cloth into a tub, and pour upon them a little more soft spring water than you have clear juice; break up the balls and wash them thoroughly in the water, so as to obtain all the juice left in the mass, and then strain it clear; measure out as many gallons of this water as you have of clear juice, say five gallons of the water to five gallons of the juice, dissolve in each gallon of the water six pounds of sugar (brown or white, as you want common or first-rate wine), and when thoroughly dissolved, add the juice (first passing it again through the strainer), and mix them. Then rinse out your cask, put it where it can stand undisturbed in a cellar; fill it perfectly full of the mixture, and lay a cloth loosely over the bung-hole. In two or three days fermentation will commence, and the impurities run over at the bung; look at it every day, and if it does not run over, with some of the mixture which you have reserved in another vessel, fill it up to the bung. In about three weeks fermentation will have ceased, and the wine be still; fill it again, drive in the bung tight, nail a tin over it, and let it remain undisturbed until the following November, or what is better, March. Then draw it off, without shaking the cask, put it into bottles or demijohns, cork tightly and seal over.

For a ten-gallon cask, you will need about 4⅓ gallons of juice, 4⅓ gallons of water, and 26 pounds of sugar, and in the same proportion for larger or smaller quantities. Some persons add spirit to the wine, but instead of doing good, it is only an injury.

Another process is, after pouring in the mixture for a ten-gallon cask, to beat up the whites of two or three eggs into a froth, put them into the cask, and with a long stick mix them thoroughly with the wine. In five or six days, draw the now clarified wine off by a spigot, and without shaking the cask at all, into a clean cask, bung up and tin, to be drawn off into glass in November or March.

The more carefully your juice is strained, the better the quality of sugar, and the more scrupulously clean your utensils, particularly your kegs are, the purer and better will be your wine.

The best quality, when you gather your own fruit, and make it yourself, costs you only the price of the white sugar, and when bottled will cost you in money about twelve and a half cents a bottle.

How to Make Currant Wine.—The currants should be fully ripe when picked; put them into a large tub, in which they should remain a day or two; then crush with the hands, unless you have a small patent wine press, in which they should not be pressed too much, or the stems will be bruised, and impart a disagreeable taste to the juice. If the hands are used, put the crushed fruit, after the juice is poured off, in a cloth or sack and press out the remaining juice. Put the juice back into the tub after cleansing it, where it should remain about three days, until the first stages of fermentation are over, and removing once or twice a day the scum copiously arising to the top. Then put the juice in a vessel—a demijohn, keg, or barrel—of a size to suit the quantity made, and to each quart add 3 lbs. of the best yellow sugar, and soft water sufficient to make a gallon. Thus, ten quarts of juice and 30 lbs. of sugar will give you 10 gallons of wine, and so on in proportion. Those who do not like sweet wine can reduce the quantity of sugar to two and a half, or who wish it very sweet, raise to three and a half pounds per gallon.

The vessel must be full, and the bung or stopper left off until fermentation ceases, which will be in 12 or 15 days: Meanwhile, the cask must be filled up daily with currant juice left over, as fermentation throws out the impure matter. When fermentation ceases, rack the wine off carefully, either from the spigot or by a syphon, and keep running all the time. Cleanse the cask thoroughly with boiling water, then return the wine, bung up tightly, and let it stand 4 or 5 months, when it will be fit to drink, and can be bottled if desired.

All the vessels, casks, etc., should be perfectly sweet, and the whole operation should be done with an eye to cleanliness. In such event, every drop of brandy or other spirituous liquors added will detract from the flavor of the wine, and will not, in the least degree, increase its keeping qualities. Currant wine made in this way will keep for an age.

How to Make Gooseberry Wine.—Pick and bruise the gooseberries, and to every pound put a quart of cold spring water, and let it stand three days, stirring it twice or thrice a day. Add to every gallon of juice three pounds of loaf sugar; fill the barrel, and when it is done working, add to every twenty quarts of liquor, one quart of brandy, and a little isinglass. The gooseberries must be picked when they are just changing color. The liquor ought to stand in the barrel six months. Taste it occasionally, and bottle when the sweetness has gone off.

How to Make Grape Wine.—Take two quarts of grape juice, two quarts of water, four pounds of sugar. Extract the juice of the grape in any simple way; if only a few quarts are desired, we do it with a strainer and a pair of squeezers, if a larger quantity is desired, put the grapes into a cheese press made particularly clean, putting on sufficient weight to extract the juice of a full hoop of grapes, being careful that none but perfect grapes are used, perfectly ripe and free from blemish. After the first pressing put a little water with the pulp and press a second time, using the juice of the second pressing with the water to be mixed with the clear grape juice. If only a few quarts are made place the wine as soon as mixed into bottles, filling them even full and allow to stand in a warm place until it ferments, which will take about thirty-six hours usually; then remove all the scum, cool and put into a dark, cool place. If a few gallons are desired place in a keg, but the keg must be even full, and after fermentation has taken place and the scum removed, draw off and bottle, and cork tight.

MEDICINES FOR HORSES
AND DOMESTIC ANIMALS

Alteratives.—This term is not very scientific, but it is in very general use, and easily explains its own meaning, though the *modus operandi* of the drugs employed to carry it out is not so clear. The object is to replace unhealthy action by a healthy one, without resorting to any of the distinctly defined remedies, such as tonics, stomachics, etc. As a general rule, this class of remedies produce their effect by acting slowly but steadily on the depuratory organs, as the liver, kidneys and skin. The following may be found useful:

1. Disordered States of the Skin—Emetic tartar 5 ounces, powdered ginger 3 ounces, opium 1 ounce; syrup enough to form sixteen balls: one to be given every night.

2. Simply Cooling—Barbadoes aloes 1 ounce, Castile soap 1½ ounces, ginger ½ ounce, syrup enough to form six balls: one to be given every morning.

3. Barbadoes aloes 1½ drachms, emetic tartar 2 drachms, Castile soap 2 drachms; mix.

4. Alterative Ball for General Use.—Black sulphuret of antimony 2 to 4 drachms, sulphur 2 drachms, nitre 2 drachms; linseed meal and water enough to form a ball.

5. For Generally Defective Secretions—Flowers of sulphur 6 ounces, emetic tartar 5 to 8 drachms, corrosive sublimate 10 grains; linseed meal mixed with hot water enough to form six balls, one of which may be given two or three times a week.

6. In Debility of Stomach—Calomel 1 scruple, aloes 1 drachm, cascarilla bark, in powder, 1 drachm, gentian root, in powder, 1 drachm, ginger, in powder, 1 drachm, Castile soap 3 drachms; syrup enough to make a ball, which may be given twice a week, or every other night.

Anæsthetics.—Anæsthetics produce insensibility to all external impressions, and therefore to pain. They resemble narcotics in their action, and, when taken into the stomach, may be considered purely as such. The most certain and safe way of administering them is by inhalation, and chloroform is the drug now universally employed. The *modus operandi* of the various kinds has never yet been satisfactorily explained; and when the comparison is made, as it often is, to the action of intoxicating fluids, we are no nearer to it than before. With alcoholic fluids, however, the disorder of the mental functions is greater in proportion to the insensibility to pain; and if they are taken in sufficient quantities to produce the latter effect, they are dangerous to life itself. The action of anæsthetics on the horse is very similar to that on man.

Anodynes.—Sometimes called narcotics, when taken into the stomach pass at once into the blood, and there act in a special manner on the nervous centers. At first they exalt the nervous force; but they soon depress it, the second stage coming on sooner according to the increase of the dose. They are given either to soothe the general nervous system, or to stop diarrhœa; or sometimes to relieve spasm, as in colic or tetanus. Opium is the chief anodyne used in veterinary medicine, and it may be employed in very large doses:

1. Anodyne Drench for Colic—Linseed oil 1 pint, oil of turpentine 1 to 2 ounces, laudanum 1 to 2 ounces; mix, and give every hour till relief is afforded.

2. Anodyne Ball for Colic—(Only useful in mild cases.) Powdered opium ½ to 2 drachms, castile soap 2 drachms, camphor 2 drachms, ginger 1½ drachm; make into a ball with liquorice powder and treacle, and give every hour while the pain lasts. It should be kept in a bottle or bladder.

3. Anodyne Ball (ordinary)—Opium ½ to 1 drachm, castile soap 2 to 4 drachms, ginger 1 to 2 drachms, powdered anise seed ½ to 1 ounce, oil of caraway seeds, ½ drachm; syrup enough to form a ball, to be dissolved in half pint of warm ale, and given as a drench.

4. Anodyne Drench in Superpurgation, or Ordinary Diarrhœa—Gum arabic 2 ounces, boiling water 1 pint: dissolve and then add oil of peppermint 25 drops, laudanum ½ to 1 ounce; mix and give night and morning, if necessary.

5. In Chronic Diarrhœa—Powdered chalk and gum arabic of each 1 ounce, laudanum ½ ounce, peppermint water 10 ounces; mix, and give night and morning.

Antacids.—As the term implies, these remedies are used to neutralize acids, whether taken into the stomach to an improper extent, or formed therein as products of diseases. They are often classed as alteratives, when used for the latter purpose. They include the alkalies and alkaline earths, but are not much used in veterinary medicine.

Anthelmintics.—Drugs which are used to destroy worms receive this name in medical literature, when the author is wedded to the Greek language. The admirers of Latin call them vermifuges, and in English they receive the humble name of worm medicines. Their action is partly by producing a disagreeable or fatal impression on the worm itself, and partly by irritating the mucous lining of the bowels, and thus causing them to expel their contents. Failing, the following may be useful.

1. Worm Ball (recommended by Mr. Gamgee) Assafœtida 2 drachms, calomel 1½ drachms, powdered sarin 1½ drachms, oil of male fern 30 drops; treacle enough to make a ball, which should be given at night, and followed by a purge next morning.

2. Mild Drench for Worms—Linseed oil 1 pint, spirit of turpentine 2 drachms; mix and give every morning.

Antispasmodics are medicines which are intended to counteract excessive muscular action, called spasm or, in the limbs, cramp. This deranged condition depends upon a variety of causes, which are generally of an irritating nature, and its successful treatment will often depend upon the employment of remedies calculated to remove the cause, rather than directly to relieve the effect. It therefore follows that, in many cases, the medicines most

successful in removing spasm, will be derived from widely separated divisions of the *materia medica*, such as aperients, anodynes, alteratives, stimulants and tonics. It is useless to attempt to give many formulas for their exhibition; but there are one or two medicines which exercise a peculiar control over spasm, and we shall give them without attempting to analyze their mode of operation.

1. In Colic—Spirit of turpentine 3½ ounces, laudanum 1½ ounces, Barbadoes aloes 1 ounce; powder the aloes, and dissolve in warm water; then add the other ingredients, and give as a drench.

2. Clyster in Colic—Spirit of turpentine 6 ounces, aloes 2 drachms; dissolve in three quarts of warm water, and stir the turpentine well into it.

3. Antispasmodic Drench—Gin 4 to 6 ounces, tincture of capsicum 2 drachms, laudanum 3 drachms, warm water 1½ pints; mix and give as a drench, when there is no inflammation.

Aperients.—Aperients, or purges, are those medicines which quicken or increase the evacuations from the bowels, varying, however, a good deal in their mode of operation. Some act merely by exciting the muscular coat of the bowels to contract; others cause an immense watery discharge, which as it were, washes out the bowels; whilst a third set combine the action of the two. The various purges also act upon different parts of the canal, some stimulating the small intestines, whilst others pass through them without affecting them, and only act upon the large bowels; and others, again, act upon the whole canal. There is a third point of difference in purges, depending upon their influencing the liver in addition, which mercurial purgatives certainly do, as well as rhubarb and some others, and which effect is partly due to their absorption into the circulation, so that they may be made to act, by injecting into the veins as strongly as by actual swallowing, and their subsequent passage into the bowels. Purgatives are likewise classed, according to the degree of their effect, into laxatives acting mildly, and drastic purges, or cathartics, acting very severely.

1. Ordinary Physic Balls—Barbadoes aloes 3 to 8 drachms, hard soap 4 drachms, ginger 1 drachm. Dissolve in as small a quantity of boiling water as will suffice; then slowly evaporate to the proper consistence, by which means griping is avoided.

2. A Warmer Physic Ball—Barbadoes aloes 3 to 8 drachms, carbonate of soda ½ drachm, aromatic powder 1 drachm, oil of caraway 12 drops. Dissolve as above, and then add the oil.

3. Gently Laxative Ball—Barbadoes aloes 3 to 5 drachms, rhubarb powder 1 to 2 drachms, ginger 2 drachms, oil of caraway 15 drops. Mix and form into a ball as in No. 1.

4. Stomachic Laxative Balls for Washy Horses—Barbadoes aloes 3 drachms, rhubarb 2 drachms, ginger 1 drachm, cascarilla powder 1 drachm, oil of caraway 15 drops, carbonate of soda 1½ drachms. Dissolve the aloes as in No. 1 and then add the other ingredients.

5. Purging Balls with Calomel—Barbadoes aloes 3 to 6 drachms, calomel ½ to 1 drachm, rhubarb 1 to 2 drachms, ginger ½ to 1 drachm, Castile soap 2 drachms. Mix as in No 1.

6. Laxative Drench—Barbadoes aloes 3 to 4 drachms, canella alba 1 to 2 drachms, salts of tartar 1 drachm, mint water 8 ounces. Mix.

7. Another Laxative Drench—Castor oil 3 to 6 ounces, Barbadoes aloes 3 to 5 drachms, carbonate of soda 2 drachms, mint water 8 ounces. Mix by dissolving the aloes in the mint water by the aid of heat, and then adding the other ingredients.

8. A Mild Opening Drench—Castor oil 4 ounces, Epsom salts 3 to 5 ounces, gruel 2 pints. Mix.

9. A Very Mild Laxative—Castor oil 4 ounces, linseed oil 4 ounces, warm water or gruel 1 pint. Mix.

10. Used in the Staggers—Barbadoes aloes 4 to 6 drachms, common salt 6 ounces, flour of mustard 1 ounce, water 2 pints. Mix.

11. A Gently Cooling Drench in Slight Attacks of Cold—Epsom salts 6 to 8 ounces, whey 2 pints. Mix.

12. Purgative Clyster—Common salt 4 to 8 ounces, water 8 to 16 pints.

Astringents Appear to produce contraction on all living animal tissues with which they come in contact, whether in the interior or on the exterior of the body, and whether immediately applied or by absorption into the circulation. But great doubt exists as to the exact mode in which they act; and, as in many other cases, we are obliged to content ourselves with their effects, and to prescribe them empirically. They are divided into astringents administered by the mouth, and those applied locally to external ulcerated or wounded surfaces:

1. For Bloody Urine—Powdered catechu ½ ounce, alum ½ ounce, cascarilla bark in powder 1 to 2 drachms, licorice powder and treacle enough to form a ball, to be given twice a day.

2. For Diabetes—Opium ½ drachm, ginger powdered 2 drachms, oak bark powdered 1 ounce, alum as much as the tea will dissolve, camomile tea 1 pint. Mix for a drench.

3. External Astringent Powders for Ulcerated Surfaces—Powdered alum 4 ounces, Armenian bole 1 ounce.

Another—White vitriol 4 ounces, oxide of zinc 1 ounce. Mix.

4. Astringent Lotion—Goulard extract 2 to 3 drachms, water ½ pint. Mix.

Another—Sulphate of copper 1 to 2 drachms, water ½ pint. Mix.

5. Astringent Ointment for Sore Heels—Acetate of lead 1 drachm, lard 1 ounce. Mix.

6. Another for the Same—Nitrate of silver powdered ½ drachm, Goulard extract 1 drachm, lard 1 ounce. Mix and use a very small portion every night.

Blisters or Vesicants—Blisters are applications which inflame the skin, and produce a secretion of serum between the cutis and cuticle, by which the latter is raised in the form of small bladders; but in consequence of the presence of the hair, these are very imperfectly seen in the horse. They consist of two kinds—one used for the sake of counter-irritation, by which the original disease is lessened, in consequence of the establishment of this irritation at a short distance from it; the other, commonly called "sweating" in veterinary surgery, by which a discharge is obtained from the vessels of the part itself, which are in that way relieved and unloaded; there is also a subsequent process of absorption in consequence of the peculiar stimulus applied.

1. Mild Blister Ointment (Counter-Irritant)—Hog's lard 4 ounces, Venice turpentine 1 ounce, powdered cantharides 6 drachms; mix and spread.

2. Stronger Blister Ointment (Counter-Irritant)—Spirit of turpentine 1 ounce, sulphuric acid, by measure, 2 drachms; mix carefully in an open place; and add—hog's lard 4 ounces. powdered cantharides 1 ounce; mix and spread.

3. Very Strong Blister Ointment (Counter-Irritant) Strong mercurial ointment 4 ounces, oil of origanum ½ ounce, finely powdered euphorbium 3 drachms, powdered cantharides ½ ounce; mix and spread.

4. Rapidly Acting Blister Ointment (Counter-Irritant)—Best flour of mustard 8 ounces, made into a paste with water; add oil of turpentine 2 ounces, strong liquor of ammonia 1 ounce; this is to be well rubbed into the chest, belly, or back, in cases of acute inflammation.

5. Sweating Blister—Strong mercurial ointment 2 ounces, oil of origanum 2 drachms, corrosive sublimate 2 drachms, cantharides powdered 3 drachms; mix and rub in with the hand.

6. Strong Sweating Blister, for Splints, Ring-Bones, Spavins, Etc.—Biniodide of mercury 1 to 1½ drachms, lard 1 ounce; to be well rubbed into the legs after cutting the hair short; and followed by the daily use of arnica in shape of a wash, as follows, which is to be painted on with a brush : tincture of arnica 1 ounce, water 12 to 15 ounces; mix.

7. Liquid Sweating Blister—Cantharides 1 ounce. spirit of turpentine 2 ounces, methylated spirit of wine 1 pint; mix and digest for a fortnight; then strain.

Another—Powdered cantharides 1 ounce, commercial pyroligneous acid 1 pint; mix and digest for a fortnight; then strain.

Caustics or Cauteries.—Caustics are substances which burn away the living tissues of the body, by the decomposition of their elements. They are of two kinds—first, the actual cautery, consisting in the application of the burning iron, and called firing; and, secondly, the potential cautery, by means of the powers of mineral caustics, such as potassa fusa, lunar-caustic, corrosive sublimate, etc.

Firing is described in the chapter on operations.

The following are the ordinary chemical applications used as potential cauteries :

1. Fused Potass, difficult to manage, because it runs about in all directions, and little used in veterinary medicine.

2. Lunar Caustic, or Nitrate of Silver, very valuable to the veterinary surgeon, and constantly used to apply to profuse granulations.

3. Sulphate of Copper, almost equally useful, but not so strong as lunar caustic; it may be well rubbed in to all high granulations, as in broken knees and similar growths.

4. Corrosive Sublimate in powder, which acts most energetically upon warty growths, but should be used with great care and discretion. It may safely be applied to small surfaces, but not without a regular practitioner to large ones. It should be washed off after remaining on a few minutes. For the mode of applying it in castration, see Horse Castration.

5. Yellow Orpiment is not so strong as Corrosive Sublimate, and may be used with more freedom. It will generally remove warty growths, by picking off their heads and rubbing it in.

6. Muriate of Antimony, called Butter of Antimony; a strong but rather unmanageable caustic, and used either by itself or mixed with more or less water.

7. Chloride of Zinc is a most powerful caustic. It may be used in old sinuses in solution, 7 drachms in a pint of water.

Milder Caustics—8, Verdigris either in powder or mixed with lard as an ointment, in the proportion of 1 to 3; 9, red precipitate, ditto, ditto; 10, burnt alum, used dry; 11, powdered white sugar.

Mild Liquid Caustics—12, solution of nitrate of silver, 5 to 15 grains to the ounce of distilled water.

13. Solution of blue vitriol of about double the above strength.

14. Chloride of zinc, 1 to 3 grains to the ounce of water.

Charges are adhesive plasters which are spread while hot on the legs, and at once covered with short tow, so as to form a strong and unyielding support while the horse is at grass.

1. Ordinary Charges—Burgundy pitch 4 ounces, Barbadoes tar 6 ounces, beeswax 2 ounces, red lead 4 ounces. The first three are to be melted together and afterwards the lead is to be added. The mixture is to be kept constantly stirred until sufficiently cold to be applied. If too stiff (which will depend upon the weather) it may be softened by the addition of a little lard or oil.

2. Arnica Charge—Canada balsam 2 ounces, powdered arnica leaves 1 ounce. The balsam to be melted and worked up with the leaves, adding spirits of turpentine if necessary. When thoroughly mixed, to be well rubbed into the whole leg, in a thin layer, and to be covered over with the Charge No. 1, which will set on its outside and act as a bandage, while the arnica is a restorative to the weakened vessels. This is an excellent application.

Clysters, or Enemata.—Clysters are intended either to relieve obstruction or spasm of the bowels, and are of great service when properly applied. They may be made of warm water or gruel, of which some quarts will be required in colic. They should be thrown up with the proper syringe, provided with valves and flexible tube.

For the turpentine clyster in colic see Antispasmodics.

Aperient clysters, see Aperients.

1. Anodyne Clyster in Diarrhœa—Starch made as for washing 1 quart, powdered opium 2 drachms. The opium is to be boiled in water and added to the starch.

Cordials are medicines which act as temporary stimulants to the whole system, and especially to the stomach. They augment the strength and spirits when depressed, as after over-exertion in work:

1. Cordial Balls—Powdered caraway seeds 6 drachms, ginger 2 drachms, oil of cloves 20 drops, treacle enough to make into a ball.

Another—Powdered anise seed 6 drachms, powdered cardamoms 2 drachms, powdered cassia 1 drachm, oil of caraway 20 drops. Mix with treacle into a ball.

2. Cordial Drench—A quart of good ale warmed and with plenty of grated ginger.

3. Cordial and Expectorant—Powdered anise seed ½ ounce, powdered squill 1 drachm, powdered myrrh 1½ drachm, balsam of Peru enough to form a ball.

Another—Liquorice powder ½ ounce, gum ammoniacum 3 drachms, balsam of tolu 1½ drachms, powdered squill 1 drachm, linseed meal and boiling water enough to form into a mass.

Demulcents are used for the purpose of soothing irritations of the bowels, kidneys, or bladder, in the two last cases by their effect upon the secretion of urine.

1. Demulcent Drench—Gum Arabic ½ ounce, water 1 pint. Dissolve and give as a drench night and morning, or mixed with a mash.

Another—Linseed 4 ounces, water 1 quart. Simmer till a strong and thick decoction is obtained, and give as above.

2. Marshmallow Drench—Marshmallows a double handful, water 1 quart. Simmer as in the second part of No. 1 and use in the same way.

Diaphoretics have a special action on the skin, increasing the perspiration sometimes to an enormous extent.

1. Ordinary Diaphoretic Drench—Solution of acetate of ammonia 3 to 4 ounces, laudanum 1 ounce. Mix and give at night. Or,

Another—Solution of acetate of ammonia 2 ounces, spirits of nitric ether 2 ounces. Mix and give as above.

2. In Hide-Bound—Emetic tartar 1½ drachms, camphor ½ drachm, ginger 2 drachms, opium ½ drachm, oil

of caraway 15 drops, linseed meal and boiling water to form a ball, which is to be given twice or thrice a week.

3. IN HIDE-BOUND (but not so efficacious)—Antimonial powder 2 drachms, ginger 1 drachm, powdered caraways 6 drachms, oil of anise seed 20 drops. Mix as above.

These remedies require moderate exercise in clothing to bring out their effects, after which the horse should be wisped till quite dry.

Digestives.—Digestives are applications which promote suppuration, and the healing of wounds or ulcers.

1. DIGESTIVE OINTMENT—Red precipitate 2 ounces, Venice turpentine 3 ounces, beeswax 1 ounce, hog's lard 4 ounces; melt the last three ingredients over a slow fire, and when nearly cold stir in the powder.

Diuretics.—Diuretics are medicines which promote the secretion and discharge of urine, the effect being produced in a different manner by different medicines; some acting directly upon the kidneys by sympathy with the stomach, while others are taken up by the blood-vessels, and in their elimination from the blood, cause an extra secretion of the urine. In either case their effect is to diminish the watery part of the blood, and thus promote the absorption of fluid effused into any of the cavities, or into the cellular membrane in the various forms of dropsy.

1. STIMULATING DIURETIC BALL—Powdered resin 3 drachms, sal prunelle 3 drachms, Castile soap 3 drachms, oil of juniper 1 drachm; mix.

2. A MORE COOLING DIURETIC BALL—Powdered nitre ½ to 1 ounce, camphor 1 drachm, juniper berries 1 drachm, soap 3 drachms; mix, adding linseed meal enough to form a ball.

3. DIURETIC POWDER FOR A MASH—Nitre ½ to ¾ ounce, resin ½ to ¾ ounce; mix.

4. ANOTHER MORE ACTIVE POWDER—Nitre 6 drachms, camphor 1½ drachms; mix.

Embrocations.—Embrocations or liniments are stimulating or sedative external applications, intended to reduce the pain and inflammation of internal parts, when rubbed into the skin with the hand.

1. MUSTARD EMBROCATION—Best flour of Mustard 6 ounces, liquor of ammonia 1½ ounces, oil of turpentine 1½ ounces; mix with sufficient water to form a thin paste.

2. STIMULATING EMBROCATION—Camphor ½ ounce, oil of turpentine 1½ ounces, spirit of wine 1½ ounces; mix.

3. SWEATING EMBROCATION FOR WINDGALLS, ETC.—Strong mercurial ointment 2 ounces, camphor ½ ounce, oil of rosemary 2 drachms, oil of turpentine 1 ounce; mix.

4. ANOTHER, BUT STRONGER—Strong mercurial ointment 2 ounces, oil of bay 1 ounce, oil of origanum ½ ounce, powdered cantharides ½ ounce; mix.

5. A MOST ACTIVE SWEATING EMBROCATION—Biniodide of mercury ½ to 1 drachm, powdered arnica leaves 1 drachm, soap liniment 2 ounces; mix.

Emulsions.—When oily matters have their globules broken down by friction with mucilaginous substances, such as gum arabic or yolk of egg, they are called emulsions, and are specially useful in soothing irritation of the mucous membrane, of the trachea and bronchi.

1. SIMPLE EMULSION—Linseed oil 2 ounces, honey 3 ounces, soft water 1 pint, subcarbonate of potass 1 drachm; dissolve the honey and potass in the water; then add the linseed oil by degrees in a large mortar, when it should assume a milky appearance. It may be given night and morning.

2. ANOTHER MORE ACTIVE EMULSION—Simple emulsion No. 1, 7 ounces, camphor 1 drachm, opium in powder ½ drachm, oil of anise seed 30 drops; rub the last three ingredients together in a mortar with some white sugar; then add the emulsion by degrees.

Horse Expectorants.—Expectorants excite or promote a discharge of mucus from the lining membrane of the bronchial tubes, thereby relieving inflammation and allaying cough.

1. EXPECTORANT BALL IN ORDINARY COUGH WITHOUT INFLAMMATION.—Gum ammoniacum ½ ounce, powdered squill 1 drachm, Castile soap 2 drachms; honey enough to form a ball.

2. IN OLD STANDING COUGH (STOMACH)—Assafœtida 3 drachms, galbanum 1 drachm, carbonate of ammonia ½ drachm, ginger 1½ drachms; honey enough to form a ball.

3. A STRONG EXPECTORANT BALL—Emetic tartar ½ drachm, calomel 15 grains, digitalis ½ drachm, powdered squills ½ drachm; linseed meal and water enough to form a ball, which is not to be repeated without great care.

Febrifuges.—Generally called fever medicines, are given to allay the arterial and nervous excitements which accompany febrile action. They do this partly by their agency on the heart and arteries through the nervous system, and partly by increasing the secretions of the skin and kidneys.

1. FEVER BALL.—Nitre 4 drachms, camphor 1½ drachms, calomel and opium, of each 1 scruple, linseed meal as above. Or,

ANOTHER.—Emetic tartar 1½ to 2 drachms, compound powder of tragacanth 2 drachms; linseed meal and water enough to form a ball. Or,

ANOTHER.—Nitre 3 drachms, camphor 2 drachms; mix as above.

2. COOLING POWDER FOR MASH.—Nitre 6 drachms to one ounce; may be given in a bran mash.

3. COOLING DRENCH.—Nitre 1 ounce, sweet spirit of nitre, 2 ounces, tincture of digitalis 2 drachms, whey 1 pint.

Lotions or Washes consist of liquids applied to the external parts, either to cool them or to produce a healthy action in the vessels.

1. COOLING SOLUTION FOR EXTERNAL INFLAMMATION.—Goulard extract 1 ounce, vinegar 2 ounces, spirits of wine or gin 3 ounces, water 1½ pints; mix, and apply with a calico bandage.

2. ANOTHER, USEFUL FOR INFLAMED LEGS, OR FOR GALLED SHOULDERS OR BACK.—Sal Ammoniac 1 ounce, vinegar 4 ounces, spirits of wine 2 ounces, tincture of arnica 2 drachms, water ½ pint; mix.

3. LOTION FOR FOUL ULCERS.—Sulphate of copper 1 ounce, nitric acid ½ ounce, water 8 to 12 ounces; mix.

4. LOTION FOR THE EYES.—Sulphate of zinc 20 to 25 grains, water 6 ounces; mix.

5. VERY STRONG ONE, AND ONLY TO BE DROPPED IN.—Nitrate of silver 5 to [illegible] grains, distilled water 1 ounce; mix and use with a camel-hair brush.

Narcotics.—A distinction is sometimes made between anodynes and narcotics, but in veterinary medicine there is no necessity for separating them. (See ANODYNES.)

Refrigerants.—Lower the animal heat by contact with the skin, the ordinary ones being cold air, cold water, ice, and evaporative lotions. (See LOTIONS.)

Sedatives.—Depress the action of the circulatory and nervous systems, without effecting the mental functions. They are very powerful in their effects; and digitalis, which is the drug commonly used for this purpose, has a special quality known by the name of cumulative; that is to say, if repeated, small doses are given at intervals for a certain time, an effect is produced almost equal to that which would follow the exhibition of the whole quantity at once. Besides digitalis, aconite is also sometimes used to lower the action of the heart, and by many it is

supposed to be equal in potency to that drug, without the danger which always attends its use.

Stimulants.—By this term is understood those substances which excite the action of the whole nervous and vascular systems; almost all medicines are stimulants to some part or other, as, for instance, aperients, which stimulate the lining of the bowels, but to the general system are lowering. On the other hand, stimulants, so called *par excellence*, excite and raise the action of the brain and heart.

Old ale 1 quart, carbonate of ammonia ½ to 2 drachms, tincture of ginger 4 drachms; mix and give as a drench.

For other stimulants, see CORDIALS.

Stomachs.—Stomachics are medicines given to improve the tone of the stomach, when impaired by bad management or disease.

STOMACHIC BALL.—Powdered gentian ½ ounce, powdered ginger 1½ drachms, carbonate of soda 1 drachm; treacle to form a ball; or

ANOTHER.—Cascarilla, powdered 1 ounce, myrrh 1½ drachms, castile soap 1 drachm; mix with syrup or treacle, into a ball; or

ANOTHER.—Powdered colombo ½ to 1 ounce, powdered cassia 1 drachm, powdered rhubarb 2 drachms; mix as in second part of No. 1.

Styptics.—Styptics are remedies which have a tendency to stop the flow of blood either from internal for external surfaces. They are used either by the mouth, or to the part itself in the shape of lotions, etc.; or the actual cautery, which is always the best in external bleeding, may be employed. Sometimes, however, the part cannot be reached with the heated iron, and is yet within the influence of an injection, as in bleeding from the nostrils, for which the following may be employed:

Matico leaves ½ ounce, boiling water 1 pint; infuse, and when cold strain and inject into the nostrils.

For internal styptics, see ASTRINGENTS.

Tonics.—Augment the vigor of the whole body permanently, whilst stimulants only act for a short time. They are chiefly useful after low fever.

TONIC BALL.—Sulphate of iron ½ ounce, extract of camomile 1 ounce; mix and form into ball.

Cattle.—1. Drink, Cough and Fever.—Take emetic tartar 1 drachm, powdered digitalis ½ drachm, nitre 3 drachms; mix and give in a quart of tolerably thick gruel.

2. Drink, Purging.—Take epsom salts 1 pound, powdered caraway seeds ½ ounce; dissolve in a quart of warm gruel and give.

3. Drink, Purging.—Take emetic tartar ½ drachm, nitre 2 drachms, powdered gentian root 1 drachm, powdered camomile flowers 1 drachm, powdered ginger ½ drachm; pour upon them a pint of boiling ale, and give the infusion when nearly cold.

3. Drink, Expectorant.—Take licorice root 2 ounces; bruise and boil in a quart of water until the fluid is reduced to a pint, then gradually and carefully add powdered squills 2 drachms, powdered gum guaiacum 1 drachm, tincture of balsam of tolu ½ ounce, honey 2 ounces; give it morning and night.

5. Drink, Turpentine for Worms.—Take oil of turpentine 2 ounces, sweet spirit of nitre 1 ounce, laudanum, ½ ounce, linseed oil 4 ounces; mix and give in a pint of gruel.

6. Drink Stimulating.—Take digitalis 1 scruple, emetic tartar ½ drachm, nitre 3 drachms, powdered squills 1 drachm, opium 1 scruple; mix, and give with a pint of gruel.

7. Drink, Sulphur Purging.—Take sulphur 8 ounces, ginger ½ ounce, mix with a quart of warm gruel. The drink should be repeated every third day, if the bowels appear to require it.

8. Drink, Rheumatic.—Take nitre 2 drachms, tartarized antimony 1 drachm, spirit of nitrous ether 1 ounce, anise seed powder 1 ounce; mix with a pint of very thick gruel, and repeat the dose morning and night, except when it is necessary to give the sulphur purging drink, No. 7.

9. Embrocation, Rheumatic.—Take neatsfoot oil, 4 ounces, camphorated oil, spirit of turpentine and laudadum, each one ounce, oil of origanum 1 drachm; mix.

10. Ointment, Healing, Cleansing.—Take lard 2 pounds, resin ½ pound; melt them together, and when nearly cold, stir in calamine, very finely powdered, half a pound.

11. Camphorated Oil.—Take camphor 2 ounces, and break into small pieces; put it into a pint of spermaceti, or common olive oil, and let the bottle, being closely corked, and shaken every day stand in a warm place until the camphor is dissolved.

12. Drink, Cordial, Rheumatic.—Take rhododendron leaves, 4 drachms, boil it in a quart of water until it is diminished to a pint; strain the decoction, and to half of the liquid, warm, add gum guaiacum finely powdered 2 drachms, powdered caraway seeds 2 drachms, powdered anise seed 2 drachms; mixed with half a pint of warm ale.

13. Drink, Tonic.—Take gentian root, powdered ½ ounce, ginger powdered 1 drachm, epsom salts 2 ounces, mix the whole with a pint of warm gruel, and give it morning and night.

14. Drink for the Yellows.—Take of calomel and opium, a scruple; mix and suspend in a little thick gruel.

15. Drink, Physic, a Strong.—Take epsom or glauber salts ½ pound, kernel of croton nut 10 grains; take off the shell of the croton nut, and weigh the proper quantity of the kernel, rub it down to a fine powder, gradually mix it with half a pint of thick gruel, and give it and immediately afterwards give the salts, dissolved in a pint and a half of thinner gruel.

16. Ointment, Blister.—Take lard 12 ounces, resin 4 ounces, melt them together, and when they are getting cold add oil of turpentine four ounces, powdered cantharides five ounces; stirring the whole together.

17. Drink, Astringent.—Take prepared chalk 2 ounces, oak bark powdered 1 ounce, catechu powdered ½ ounce, opium powdered 2 scruples, ginger powdered 2 drachms; mix and give in a quart of warm gruel.

18. Drink, Astringent, with Mutton Suet.—Take mutton suet 1 pound, new milk 2 quarts; boil them together until the suet is dissolved; then add—Opium powdered ½ drachm, ginger 1 drachm; having previously well mixed them with a spoonful or two of fluid.

19. Whey, Alum.—Take alum ½ ounce, water 2 quarts; boil them together for ten minutes and strain.

20. Astringent, Stimulating.—Take oil of Juniper 2 to 4 drachms, tincture of opium 1 ounce, oil of turpentine 1 ounce; mix and give in a pint of linseed tea once or twice a day.

21. Drink, Stimulating.—Take epsom or glauber salts 1 pound, ginger ½ ounce, carbonate of ammonia ½ ounce, pour one quart of boiling water upon the ingredients; stir them well and give when milk warm.

22. Stimulating Drink, Mild.—Take ginger 1 drachm, gentian 1 drachm, spirit of nitrous ether 1 ounce; mix and give in a pint of gruel.

23. Astringent, Mild.—take oak bark powdered ½ ounce, catechu powdered 2 drachms, opium powdered ½ scruple; mix together in a pint of gruel or warm water.

24. Ointment, Mercurial Garget.—Take soft soap 1 pound, mercurial ointment 2 ounces, camphor rubbed down with a little spirit of wine 1 ounce ; rub them well together.

25. Ointment, Iodine.—Take hydrate of potash 1 drachm, lard 7 drachms; rub them well together.

26. Drink, Diuretic.—Take powdered nitre 1 ounce, powdered resin 2 ounces, ginger 2 drachms; mix them well together in a little treacle, and give them in a warm gruel.

27. Ointment for Sore Teats.—Take elder ointment 6 ounces, beeswax 2 ounces ; mix them together, and add an ounce each of sugar of lead and alum in fine powder, and stir them together until cold.

28. Drink, Stimulant, Warm.—Take ginger powdered ½ ounce, caraway seeds 6 drachms, allspice ½ ounce ; mix in a quart of warm water or mild ale.

29. Drink, Anodyne.—Take powdered opium ½ drachm, sweet spirit of nitre 2 ounces ; rub them together, adding the fluid by small quantities at a time, and give the mixture in a pint of warm gruel.

30. Drink, Purgative, Strong.—Take Epsom or Glauber salts 12 ounces, flowers of sulphur 4 ounces, powdered ginger 4 drachms, spirit of nitrous ether 1 ounce ; to be dissolved in warm water.

31. Drink, Cordial.—Take caraway powder 1 ounce, gentian, powered ½ ounce, essence of peppermint 20 drops ; mix.

32. Drink, Tonic.—Take gentian 2 drachms, tartrate of iron 1 drachm, ginger 1 drachm ; mix and give in a pint of gruel.

33. Drink, Tonic, Mildest.—Take gentian 2 drachms, emetic tartar ½ drachm, nitre ½ ounce, spirit of nitrous ether ½ ounce ; give in gruel.

34. Lotion, Disinfectant.—Take solution of chloride of lime, in powdered ¼ ounce, water 1 pint ; mix.

35. Murrain, Drink for.—Take Sweet Spirit of Nitre ½ ounce, laudanum ½ ounce, choride of lime, in powder 2 ounces, prepared chalk 1 ounce ; rub them well together, and give them with a pint of warm gruel.

36. Drink, Tonic, for Murrain.—Take columbia root 2 drachms, canella bark 2 drachms, ginger 1 drachm, sweet spirit of nitre ½ ounce ; rub them together, and give in a pint of thick gruel.

37. Fumigation.—Take common salt 2 pounds, oil of vitriol 1 pound.

38. Drink, Laxative.—Take Epsom salts ½ pound, sulphur 2 to 4 ounces, nitre ½ ounce, ginger 2 drachms, spirit of nitrous ether 1 ounce ; dissolve in warm water or gruel, and repeat once a day for several days.

39. Liniment.—Take alum and white vitriol, of each ½ ounce, treacle 1 gill ; dissolve in a pint of warm water.

40. Astringent Powder.—Take blue vitriol, powdered ½ ounce, powdered alum ½ ounce, prepared chalk 2 ounces, armenian bole 1 ounce ; mix.

41. Tonic, Strong.—Take powdered ginger 1 drachm, powdered caraway seeds 1 drachm, gentian, powdered 4 drachms, spirit of nitrous ether 1 ounce ; to be mixed slowly with gruel.

42. Drink for Inflammation of the Bladder.—Take antimonial powder 2 drachms, powdered opium 1 scruple; rub well together with a small portion of very thick gruel, and repeat the dose morning and night.

43. Eye Lotion, Sedative (1)—Take dried leaves of fox glove, powdered 1½ ounces ; infuse them in a pint of cape or dry raisin wine for a fortnight, and keep the infusion for use.

44. Eye Lotion, Sedative (2)—Take extract of goulard 2 drachms, spirituous tincture of digitalis, (made in the same manner as the vinous in receipt 43, No. 1) 2 drachms, tincture of opium 2 drachms, water 1 pint ; this should also be introduced into the eye. Two or three drops at a time will suffice.

45. Lotion for the Eye, Strengthening.—Take white vitriol 1 scruple, spirit of wine 1 drachm, water 1 pint ; mix them together, and use the lotion in the same manner as Nos. 43 and 44.

46. Drink, Cordial.—Take caraway seed in powder ½ ounce, anise seed, in powder ½ ounce, ginger ½ ounce ; mix with a pint of good ale, made hot.

47. Physic Drink, for Locked Jaw, Strong.—Take barbadoes aloes 1½ ounces, kernel of croton nut powder 10 grains ; dissolve in as small quantity of boiling water as possible, and give them when the liquid is sufficiently cool.

48. Anodyne Drink, for Lock-Jaw.—Take camphor 1 drachm, rub it down in an ounce of spirits of wine; to this add : powdered opium 1 drachm ; and give the mixture in a small quantity of thick gruel.

49. Embrocation for Bite of serpents.—Take hartshorn and olive oil equal quantities. Shake them well together, and rub the wound and the neighboring parts well with the liniment morning and night.

50. Lotion, Discuticnt.—Take bay salt 4 ounces, vinegar 1 pint, water 1 quart, oil of origanum 1 drachm; add the oil of salt first; rub them well down with a little water; then gradually add the balance of the water and vinegar.

51. Embrocation for Strains.—Take bay salt 4 ounces, oil of origanum 1 drachm; rub them well together, until the salt is reduced to a powder; then add—vinegar ½ pint, spirits of wine 2 ounces, water 1 quart.

52. Embrocation for Strains, Strongest.—Take spirit of turpentine ½ pint, oil of origanum ½ ounce, olive oil 1½ pints, cantharides 1 ounce; mix them together; shake them often and keep in a bottle for use.

53. Charge for Old Strains and Lameness.—Take burgundy pitch 4 ounces, common pitch 4 ounces, yellow wax 2 ounces, barbadoes tar 6 ounces; melt them together in a ladle, and apply the mixture to the parts when thoroughly warm and liquid.

54. Mange Ointment.—Take flowers of sulphur 1 pound, strong mercurial ointment 2 ounces, common turpentine ½ pound, lard 1½ pounds; melt the turpentine and lard together; stir well in the sulphur when these begin to cool; and afterwards rub down the mercurial ointment on a marble slab with the other ingredients.

55. Drink, Alterative—Take flowers of sulphur 2 ounces, black sulphuret of antimony 1 ounce, Æthiop's mineral ½ ounce, nitre 2 ounces; mix and divide into four powders, give one every second morning in a little thick gruel. Turning into a salt marsh will be an excellent auxiliary.

56. Vermin, Mercurial Ointment for.—Take strong mercurial ointment 1 ounce, lard 7 ounces; mix them well together, and rub the ointment well on wherever the lice appear.

57. Vermin, Lotion for—Take corrosive sublimate 2 drachms; rub it down in 2 ounces of spirits of wine, and add a pint of water.

58. Tonic Powders, Alterative.—Take flowers of sulphur 4 ounces, black sulphuret of antimony 1 ounce, Æthiop's mineral ½ ounce, nitre 2 ounces, powdered gentian 2 ounces, powdered ginger 1 ounce; mix and divide into six powders, and give one daily.

59. Bull Burnt, Lotion for.—Take Goulard's extract 1 ounce, spirit of wine 2 ounces, water ½ pint; mix.

60. Cow-pox, Lotion for.—Take sal ammoniac ¼ ounce, white wine vinegar ½ pint, camphorated spirit of wine 2 ounces, Goulard's extract 1 ounce; mix, and keep it in a bottle for use.

61. **Calves.**—Drink, Aperient for—Take Epsom salts, from 1 to 2 ounces, according to the age and size of the calf, and dissolve in half a pint of gruel; then add ginger, 1 scruple; essence of peppermint, 3 drops; mix.

62. Diarrhœa in—Take prepared chalk 2 drachms, powdered opium 10 grains, powdered catechu ½ drachm, ginger ½ drachm, essence of peppermint 5 drops; mix and give twice a day in half pint of gruel.

63. Purging, to Stop—Take Dover's powder 2 scruples, starch or arrow-root in powder 1 ounce, compound cinnamon powder 1 drachm, powdered kino ½ drachm; boil the starch or arrow-root in a pint of water until it becomes well thickened, and then gradually stir in the other ingredients.

64. Hoove in—Take oil of turpentine 1 ounce, linseed oil 3 or 4 ounces, ginger powdered 1 drachm; mix. To be repeated at the interval of a week, as often as may be required.

65. **Sheep.**—Tonic Drink.—Take gentian root powdered 1 drachm, caraway powder ½ drachm, tincture of caraway 10 drops; give in a quarter of a pint of thick gruel.

66. Purging, Drink for—Take Epsom salts 2 ounces, powdered caraway ¼ ounce; warm thin gruel sufficient to dissolve the salts.

67. Astringent Drink for—Take compound chalk powder with opium 1 drachm, gentian 1 scruple, essence of peppermint 3 drops; mix with a little thin starch, and give morning and night.

68. Cooling Fever Drink.—Take powdered digitalis 1 scruple, emetic tartar 10 grains, nitre 2 drachms; mix with thick gruel, and let it be given twice each day.

69. Laxative Medicine.—Take Epsom salts 1 ounce, ginger 1 scruple, gentian 1 drachm, warm water 2 ounces, linseed oil 1 ounce; the above may be given either alone or with gruel, to a full grown sheep; and from one-fourth to one-half to a lamb, according to its age.

70. Strengthening Drink.—Take prepared chalk 1 ounce, catechu ½ drachm, opium 20 grains, spirit of nitrous ether 2 drachms, gentian 1 drachm; to be dissolved in gruel, and given twice a day till the purging ceases; after which the last two ingredients, with a drachm of nitre and 10 grains of tartarized antimony, should be given in gruel once a day.

71. Physic for Blown.—Take Glauber salts 1 ounce, and dissolve in peppermint water 4 ounces; to this add tincture of ginger 1 drachm; tincture of gentian 1 drachm; boiling water 1 ounce. This should be given every six hours until the bowels are opened, and half the quantity on each of the four next mornings.

72. General Tonic Drink.—Take gentian 2 drachms, colombo 1 drachm, ginger ½ drachm; give in four ounces of warm gruel.

73. Mixture for the Rot.—Take common salt 8 ounces, powdered gentian 2 ounces, ginger 1 ounce, tincture of colombo 4 ounces; put the whole into a quart bottle so as to fill the bottle.

74. Second Mixture for the Rot—Take of the receipt, Mixture for the rot (which see), one quart. To this add, spirits of turpentine 3 ounces. Shake them well together when first mixed, and whenever the medicine is given, two tablespoonfuls are the usual dose.

75. Caustic, Astringent Powder for Foot Rot.—Take verdigris, armenian bole, and sugar of lead, equal parts. Rub them well together, until they are reduced to a fine powder.

76. Arsenical Wash for Lice.—Take arsenic 2 pounds, soft soap 4 pounds; dissolve in 30 gallons of water.

77. Mercurial Wash for Lice.—Take corrosive sublimate 1 ounce, spirits of wine 2 ounces. Rub the corrosive sublimate in the spirit until it is dissolved, and then add cream of tartar 1 ounce, bay salt 4 ounces. Dissolve the whole in two quarts of water, and apply a little of it with a small piece of sponge wherever the lice appear.

78. Fly Powder for.—Take white lead 2 pounds, red lead 1 pound, and mix them together.

79. Ointment for Sore Heads.—Take black pitch 2 pounds, tar 1 pound, flowers of sulphur 1 pound; melt them in an iron pot over a very slow fire, stirring together the ingredients as they begin to melt, but carefully watching the compound, and removing the pot from the fire the moment the ingredients are well mixed, and before they begin to boil, for they would then rapidly swell to an extraordinary extent, and the whole mass would run over into the fire.

80. Astringent Powder for.—Take prepared chalk ¼ ounce, ginger ½ drachm, catechu powdered ½ drachm, powdered opium 2 grains; give this in a little gruel, twice daily until the purging abates.

81. Mild Laxative.—Take linseed oil 2 ounces, powdered opium 2 grains; to be mixed with linseed tea, linseed and oatmeal gruel should be given several times a day, and the second day the astringent powder for sheep should be given.

82. Tonic Drink for Debility.—Take gentian and powdered caraway seeds, of each 1 ounce; colombo and ginger, of each ½ an ounce. Pour a quart of boiling water upon them, and let the infusion stand three days, stirring it well every day. Then pour off the clear liquid, and bottle it for use. Give a tablespoonful daily in a little gruel, mixed with an equal quantity of good ale.

83. Lotion for Cloudiness on the Eyes.—Take corrosive sublimate 4 grains; rub it down with spirits of wine ¼ ounce; and add one pint of water.

84. Mercurial Ointment for Scab.—Take crude quicksilver 1 pound, venice turpentine ½ pound, spirits of turpentine 2 ounces; mix.

85. Mild Ointment for Scab.—Take flowers of sulphur 1 pound, venice turpentine 4 ounces, rancid lard 2 pounds, strong mercurial ointment 4 ounces; rub them well together.

86. Powerful Ointment for Scab.—Take white hellebore 3 ounces, bichloride of mercury 2 ounces, fish oil 12 pounds, resin 6 ounces, tallow ½ pound; the two first ingredients to be mixed with a portion of the oil; and then melt the other ingredients and add.

87. Smearing Mixture for Scab.—Take a gallon of common tar and 12 pounds of any sweet grease. Melt them together, stirring them well while they are cooling.

88. **Swine.**—Fever Medicines for.—Take digitalis 3 grains, antimonial powder 6 grains, nitre ½ drachm; mix and give in a little warm swill, or milk, or mash.

89. Alterative Powder for.—Take flowers of sulphur ¼ ounce, Æthiop's mineral 3 grains, nitre and cream of tartar ½ drachm; mix and give daily in a little thickened gruel or wash.

Soapstone Paint for Iron.—Both in China and Japan soapstone has long been largely used for protecting structures built of soft stone and other materials specially liable to atmospheric influences. It has been found that powdered soapstone in the form of paint has preserved obelisks formed of stone for hundreds of years, which would, unprotected, have long ago crumbled away. Seeing what a preservative quality this material has, it is specially of interest to shipowners to learn that Mr. Goodall has, in the course of many experiments, "found nothing to take hold of the fibre of iron and steel so easily and firmly as soapstone." For the inside painting of steel and iron ships it is found to be excellent. It has no anti-fouling quality, but is anti-corrosive.

..CHOICE POEMS..

WOULD WE RETURN ?

Would we return
If once the gates which closed upon the past
Were opened wide for us, and if the dear
Remembered pathway stretched before us clear
To lead us back to youth's lost land at last,
When on life's April shadows lightly cast,
Recalled the old sweet days of childish fear
With all their faded hopes, and brought anear
The far off streams with which our skies were glassed;
Did these lost dreams which wake the soul's sad yearning
But live once more and waited our returning,
Would we return?

Would we return
If love's enchantment held the heart no more,
And we had come to count the wild, sweet pain,
The fond distress, the lavish tears—but vain;
Had cooled the heart's hot wounds amidst the roar
Of mountain gales, or on some alien shore
Worn out the soul's long anguish, and had slain
At last the dragon of despair—if then the train
Of vanquished years came back, and, as of yore,
The same voice called, and with soft eyes beguiling,
Our lost love beckoned, through times gray and smiling,
Would we return?

Would we return
Once we had crossed to death's unlovely land,
And trod the bloomless ways among the dead
Lone and unhappy; after years had fled
With twilight wings along that glimmering strand,
If then—an angel came with outstretched hand
To lead us back, and we recalled in dread
How soon the tears that once for us are shed
May flow for others—how like words in sand
Our memory fades away—how oft our waking
Might vex the living with the dead heart's breaking,
Would we return—
Would we return?

—*Robert Burns Wilson.*

WE PARTED IN SILENCE.

BY MRS. CRAWFORD.

We parted in silence, we parted by night,
On the banks of that lonely river;
Where the fragrant limes their boughs unite
We met—and we parted forever!
The night-bird sung, and the stars above
Told many a touching story
Of friends long passed to the kingdom of love,
Where the soul wears its mantle of glory.

We parted in silence—our cheeks were wet
With the tears that were past controlling;
We vowed we would never, no, never forget,
And those vows, at the time, were consoling;
But those lips that echoed the sounds of mine
Are as cold as that lonely river;
And that eye, that beautiful spirit's shrine,
Has shrouded its fires forever.

And now, on the midnight sky I look,
And my heart grows full of weeping;
Each star is to me a sealed book,
Some tale of that loved one keeping.
We parted in silence, we parted in tears,
On the banks of that lonely river;
But the odor and bloom of those bygone years
Shall hang o'er its waters forever.

MAUD MULLER.

BY JOHN G. WHITTIER.

Maud Muller, on a summer's day,
Raked the meadow, sweet with hay.

Beneath her torn hat glowed the wealth
Of simple beauty and rustic health.

Singing, she wrought, and her merry glee
The mock-bird echoed from his tree.

But, when she glanced to the far-off town,
White from its hill-slope looking down,

The sweet-song died, and a vague unrest
And a nameless longing filled her breast—

A wish, that she hardly dared to own,
For something better than she had known.

The Judge rode slowly down the lane,
Smoothing his horse's chestnut mane.

He drew his bridle in the shade
Of the apple-trees to greet the maid.

She stooped where the cool spring bubbles up
And filled for him her small tin cup.

And blushed as she gave it, looking down
On her feet so bare, and her tattered gown.

"Thanks!" said the Judge, "a sweeter draught
From a fairer hand was never quaffed."

He spoke of the grass and flowers and trees,
Of the singing birds and the humming bees;

Then talked of the haying, and wondered whether
The cloud in the west would bring foul weather.

And Maud forgot her brier-torn gown
And her graceful ankles bare and brown,

And listened, while a pleased surprise
Looked from her long-lashed, hazel eyes.

At last, like one who for delay
Seeks a vain excuse, he rode away.

Maud Muller looked and sighed: "Ah me!
That I the Judge's bride might be!

"He would dress me up in silks so fine,
And praise and toast me at his wine.

"My father would wear a broadcloth coat;
My brother should sail a painted boat.

"I'd dress my mother so grand and gay;
And the baby should have a new toy each day.

"And I'd feed the hungry and clothe the poor,
And all should bless me who left our door."

The Judge looked back as he climbed the hill,
And saw Maud Muller standing still:

"A form more fair, a face more sweet,
Ne'er hath it been my lot to meet.

"And her modest answer and graceful air
Show her wise and good as she is fair.

"Would she were mine, and I to-day,
Like her, a harvester of hay.

"No doubtful balance of rights and wrongs,
No weary lawyers with endless tongues,

"But low of cattle, and song of birds,
And health, and quiet, and loving words."

But he thought of his sister, proud and cold,
And his mother, vain of her rank and gold.

So, closing his heart, the Judge rode on,
And Maud was left in the field alone.

But the lawyers smiled that afternoon,
When he hummed in court an old love tune.

And the young girl mused beside the well,
Till the rain on the unraked clover fell.

He wedded a wife of richest dower,
Who lived for fashion, as he for power.

Yet oft, in his marble hearth's white glow,
He watched a picture come and go;

And sweet Maud Muller's hazel eyes
Looked out in their innocent surprise.

Oft, when the wine in his glass was red,
He longed for the wayside well instead.

And closed his eyes on his garnished rooms,
To dream of meadows and clover-blooms;

And the proud man sighed with a secret pain,
"Ah, that I were free again!

"Free as when I rode that day
Where the barefoot maiden raked the hay."

She wedded a man unlearned and poor,
And many children played round her door.

But care and sorrow, and child-birth pain,
Left their traces on heart and brain.

And oft, when the summer sun shone hot
On the new-mown hay in the meadow lot,

And she heard the little spring brook fall
Over the road side, through the wall.

In the shade of the apple-tree again
She saw a rider draw his rein.

And, gazing down with timid grace,
She felt his pleased eyes read her face.

Sometimes her narrow kitchen walls
Stretched away into stately halls;

The weary wheel to a spinnet turned,
The tallow candle an astral burned,

And for him who sat by the chimney lug,
Dozing and grumbling o'er pipe and mug,

A manly form at her side she saw,
And joy was duty and love was law.

Then she took up her burden of life again,
Saying only, "It might have been."

Alas for maiden, alas for Judge,
For rich repiner and household drudge!

God pity them both! and pity us all,
Who vainly the dreams of youth recall.

For of all sad words of tongue or pen,
The saddest are these: "It might have been!"

Ah, well! for us all some sweet hope lies
Deeply buried from human eyes;

And, in the hereafter, angels may
Roll the stone from its grave away!

OFT, IN THE STILLY NIGHT.

Oft in the stilly night,
Ere slumber's chain has bound me,
Fond memory brings the light
Of other days around me;
The smiles, the tears,
Of boyhood's years,
The words of love then spoken;
The eyes that shone,
Now dimm'd and gone,
The cheerful hearts now broken!

Thus, in the stilly night,
Ere slumber's chain has bound me,
Sad memory brings the light
Of other days around me.
When I remember all
The friends so linked together,
I've seen around me fall,
Like leaves in wintry weather;
I feel like one,
Who treads alone
Some banquet hall deserted,
Whose lights are fled,
Whose garlands dead,
And all but he departed!
Thus, in the stilly night,
Ere slumber's chain has bound me,
Sad memory brings the light
Of other days around me.

—THOMAS MOORE.

HEREAFTER.

O land beyond the setting sun!
O realm more fair than poet's dream!
How clear thy silvery streamlets run,
How bright thy golden glories gleam!

Earth holds no counterpart of thine,
The dark-browed Orient, jewel-crowned,
Pales as she bows before thy shrine,
Shrouded in mystery so profound.

The dazzling North, the stately West,
Whose rivers flow from mount to sea;
The South, flower-wreathed in languid rest—
What are they all compared with thee?

All lands, all realms beneath yon dome,
Where God's own hand hath hung the stars,
To thee with humblest homage come,
O world beyond the crystal bars!

Thou blest hereafter! Mortal tongue
Hath striven in vain thy speech to learn,
And fancy wanders, lost among
The flowery paths for which we yearn.

But well we know that, fair and bright,
Far beyond human ken or dream,
Too glorious for our feeble sight,
Thy skies of cloudless azure beam.

We know thy happy valleys lie
In green repose, supremely blest;
We know against thy sapphire sky
Thy mountain peaks sublimely rest.

And sometimes even now we catch
Faint gleamings from the far-off shore,
And still with eager eyes we watch
For one sweet sign or token more.

For oh, the deeply loved are there!
The brave, the fair, the good, the wise,
Who pined for thy serener air,
Nor shunned thy solemn mysteries.

There are the hopes that, one by one,
Died even as we gave them birth;
The dreams that passed ere well begun,
Too dear, too beautiful for earth.

The aspirations, strong of wing,
Aiming at heights we could not reach;
The songs we tried in vain to sing;
Thoughts too vast for human speech;

Thou hast them all, Hereafter! Thou
Shalt keep them safely till that hour
When, with God's seal on heart and brow,
We claim them in immortal power!

CHANGES.

Whom first we love, you know, we seldom wed.
Time rules us all. And life, indeed, is not
The thing we planned it out, ere hope was dead;
And then, we women cannot choose our lot.

Much must be borne which it is hard to bear;
Much given away which it were sweet to keep.
God help us all! who need, indeed, His care;
And yet, I know, the Shepherd loves His sheep.

My little boy begins to babble now,
Upon my knee, his earliest infant prayer;
He has his father's eager eyes, I know;
And, they say, too, his mother's sunny hair.

But when he sleeps, and smiles upon my knee,
And I can feel his light breath come and go,
I think of one (Heaven help and pity me!)
Who loved me, and whom I loved, long ago.

Who might have been * * * ah! what, I dare not think!
We are all changed. God judges for us best.
God help us do our duty, and not shrink,
And trust in Heaven humbly for the rest.

But blame us women not, if some appear
Too cold at times; and some too gay and light.
Some griefs gnaw deep. Some woes are hard to bear.
Who knows the past, and who can judge us right?

Ah! were we judged by what we might have been,
And not by what we are—too apt to fall!
My little child—he sleeps and smiles between
These thoughts and me. In heaven we shall know all.

OH, WHY SHOULD THE SPIRIT OF MORTAL BE PROUD?

ABRAHAM LINCOLN'S FAVORITE POEM. BY WILLIAM KNOX.

Oh, why should the spirit of mortal be proud?
Like a swift-fleeting meteor, a fast-flying cloud,
A flash of the lightning, a break of the wave,
Man passes from life to his rest in the grave.

The leaves of the oak and the willow shall fade,
Be scattered around and together be laid;
And the young and the old, and the low and the high,
Shall molder to dust, and together shall lie.

The infant a mother attended and loved,
The mother that infant's affection who proved,
The husband that mother and infant who blessed,
Each, all, are away to their dwellings of rest.

The maid on whose cheek, on whose brow, in whose eye,
Shone beauty and pleasure—her triumphs are by;
And the memory of those who loved her and praised;
Are alike from the minds of the living erased.

The hand of the king that the sceptre hath borne,
The brow of the priest that the mitre hath worn,
The eye of the sage and the heart of the brave,
Are hidden and lost in the depth of the grave.

The peasant, whose lot was to sow and to reap,
The herdsman, who climbed with his goats up the steep,
The beggar, who wandered in search of his bread,
Have faded away like the grass that we tread.

The saint who enjoyed the communion of Heaven,
The sinner who dared to remain unforgiven,
The wise and the foolish, the guilty and just,
Have quietly mingled their bones in the dust.

So the multitude goes, like the flowers or the weed
That withers away to let others succeed;
So the multitude comes, even those we behold,
To repeat every tale that has often been told.

For we are the same our fathers have been;
We see the same sights our fathers have seen,—
We drink the same stream and view the same sun,
And run the same course our fathers have run.

The thoughts we are thinking our fathers would think,
From the death we are shrinking our fathers would shrink,
To the life we are clinging they also would cling;
But it speeds for us all, like a bird on the wing.

They loved, but the story we cannot unfold;
They scorned, but the heart of the haughty is cold;
They grieved, but no wail from their slumbers will come;
They joyed, but the tongue of their gladness is dumb.

They died, aye! they died; and we things that are now,
Who walk on the turf that lies over their brow,
Who make in their dwellings a transient abode,
Meet the things that they met on their pilgrimage road.

Yea! hope and despondency, pleasure and pain,
We mingle together in sunshine and rain;
And the smiles and the tears, the song and the dirge
Still follow each other, like surge upon surge.

'Tis the wink of an eye, 'tis the draught of a breath;
From the blossom of health to the paleness of death,
From the gilded saloon to the bier and the shroud,—
Oh, why should the spirit of mortal be proud?

'TIS THE LAST ROSE OF SUMMER.

'Tis the last rose of summer,
Left blooming alone;
All her lovely companions
Are faded and gone;
No flower of her kindred
No rosebud is nigh
To reflect back her blushes,
Or give sigh for sigh.

I'll not leave thee, thou lone one!
To pine on the stem;
Since the lovely are sleeping,
Go sleep thou with them.
Thus kindly I scatter
Thy leaves o'er the bed
Where thy mates of the garden
Lie scentless and dead.

So soon may I follow,
When friendships decay,
And from love's shining circle
The gems drop away.
When true hearts lie wither'd,
And fond ones are flown,
Oh, who would inhabit
This bleak world alone?

—THOMAS MOORE.

BINGEN ON THE RHINE.

BY CAROLINE E. NORTON.

A soldier of the Legion lay dying in Algiers:
There was lack of woman's nursing, there was dearth of woman's tears;
But a comrade stood beside him, while his life blood ebbed away,
And bent with pitying glances, to hear what he might say.
The dying soldier faltered, as he took that comrade's hand,
And he said, "I never more shall see my own, my native land.
Take a message and a token to some distant friends of mine;
For I was born at Bingen—at Bingen on the Rhine!

"Tell my brothers and companions, when they meet and crowd around,
To hear my mournful story, in the pleasant vineyard ground,
That we fought the battle bravely; and when the day was done,
Full many a corpse lay ghastly pale beneath the setting sun.
And midst the dead and dying were some grown old in war,
The death-wounds on their gallant breasts the last of many scars;
But some were young, and suddenly beheld life's morn decline;
And one had come from Bingen — fair Bingen on the Rhine!

"Tell my mother that her other sons shall comfort her old age,
For I was still a truant bird that thought his home a cage;
For my father was a soldier, and even as a child
My heart leaped forth to hear him tell of struggles fierce and wild;
And when he died, and left us to divide his scanty hoard,
I let them take whate'er they would—but kept my father's sword;
And with boyish love I hung it, where the bright light used to shine
On the cottage wall at Bingen—calm Bingen on the Rhine.

"Tell my sister not to weep for me, and sob with drooping head,
When the troops come marching home again, with glad and gallant tread;
But to look upon them proudly, with a calm and steadfast eye,
For her brother was a soldier too, and not afraid to die;
And if a comrade seek her love, I ask her in my name
To listen to him kindly, without regret or shame;
And to hang the old sword in its place, my father's sword and mine,
For the honor of old Bingen—dear Bingen on the Rhine!

"There's another, not a sister; in the happy days gone by,
You'd have known her by the merriment that sparkled in her eye;
Too innocent for coquetry, too fond for idle scorning;
O friend! I fear the lightest heart makes sometimes heaviest mourning.
Tell her the last night of my life (for ere this moon be risen,
My body will be out of pain, my soul be out of prison,
I dreamed I stood with her, and saw the yellow sunlight shine
On the vine-clad hills of Bingen — fair Bingen on the Rhine!

"I saw the blue Rhine sweep along; I heard, or seemed to hear,
The German songs we used to sing, in chorus sweet and clear;
And down the pleasant river, and up the slanting hill,
The echoing chorus sounded, through the evening calm and still;
And her glad blue eyes were on me, as we passed, with friendly talk,
Down many a path beloved of yore, and well-remembered walk;
And her little hand lay lightly, confidingly in mine;
But we'll meet no more at Bingen — loved Bingen on the Rhine!"

His voice grew faint and hoarse — his grasp was childish weak;
His eyes put on a dying look — he sighed, and ceased to speak;
His comrade bent to lift him, but the spark of life had fled;
The soldier of the Legion in a foreign land was dead!

And the soft moon rose up slowly, and calmly she looked down
On the red sand of the battle-field, with bloody corpses strown.
Yes, calmly on that dreadful scene her pale light seemed to shine,
As it shone on distant Bingen — fair Bingen on the Rhine!

"'OSTLER JOE."

I stood at eve as the sun went down, by a grave where a woman lies,
Who lured men's souls to the shores of sin with the light of her wanton eyes;
Who sang the song that the siren sang on the treacherous Lurley height,
Whose face was as fair as a summer day, and whose heart was as black as night.

Yet a blossom I fain would pluck to-day from the garden above her dust—
Not the languorous lily of soulless sin, nor the blood-red rose of lust.
But a sweet white blossom of holy love that grew in the one green spot
In the arid desert of Phryne's life, where all was parched and hot.

In the summer, when the meadows were aglow with blue and red,
Joe, the 'ostler of the Magpie, and fair Annie Smith were wed.
Plump was Annie, plump and pretty, with a cheek as white as snow;
He was anything but handsome, was the Magpie's 'Ostler Joe.

But he won the winsome lassie. They'd a cottage and a cow,
And her matronhood sat lightly on the village beauty's brow,
Sped the months and came a baby—such a blue-eyed baby boy!
Joe was working in the stables when they told him of his joy.

He was rubbing down the horses, and he gave them then and there
All a special feed of clover, just in honor of the heir.
It had been his great ambition, and he told the horses so,
That the Fates would send a baby who might bear the name of Joe.

Little Joe the child was christened, and, like babies, grew apace;
He'd his mother's eyes of azure, and his father's honest face.
Swift the happy years went over, years of blue and cloudless sky,
Love was lord of that small cottage, and the tempest passed them by.

Passed them by for years, then swiftly burst in fury o'er their home.
Down the lane by Annie's cottage chanced a gentleman to roam;
Thrice he came and saw her sitting by the window with her child,
And he nodded to the baby, and the baby laughed and smiled.

So at last it grew to know him—Little Joe was nearly four;
He would call the "pretty gemplin" as he passed the open door;
And one day he ran and caught him, and in child's play pulled him in;
And the baby Joe had prayed for brought about the mother's sin.

'Twas the same old wretched story, that for ages bards have sung,
'Twas a woman weak and wanton, and a villain's tempting tongue;
'Twas a picture deftly painted for a silly creature's eyes
Of the Babylonian wonders, and the joy that in them lies.

Annie listened and was tempted; she was tempted and she fell,
As the angels fell from heaven to the blackest depths of hell;
She was promised wealth and splendor, and a life of guilty sloth,
Yellow gold for child and husband, and the woman left them both.

Home one eve came Joe the 'Ostler with a cheery cry of "Wife!"
Finding that which blurred forever all the story of his life.
She had left a silly letter—through the cruel scrawl he spelt;
Then he sought the lonely bedroom, joined his hands and knelt.

"Now, O Lord, O God, forgive her, for she ain't to blame," he cried;
"For I owt t' a seen her trouble, and 'a gone away and died.
Why, a wench like her—God bless her!—'twasn't likely as her'd rest
With her bonny head forever on a 'ostler's ragged vest.

"It was kind o' her to bear me all this long and happy time;
So, for my sake please to bless her, though you count her deed a crime.
If so be I don't pray proper, Lord, forgive me; for you see,
I can talk all right to 'osses, but I'm nervous like with Thee."

Never a line came to the cottage from the woman who had flown.
Joe, the baby, died that winter, and the man was left alone.
Ne'er a bitter word he uttered, but in silence kissed the rod,
Saving what he told the horses, saving what he told his God.

Far away in mighty London rose the woman into fame,
For her beauty won men's homage, and she prospered in her shame;
Quick from lord to lord she flitted, higher still each prize she won,
And her rival paled beside her as the stars beside the sun.

Next she made the stage her market, and she dragged Art's temple down.
To the level of a show-place for the outcasts of the town.
And the kisses she had given to poor 'Ostler Joe for nought
With their gold and costly jewels rich and titled lovers bought.

Went the years with flying footsteps while the star was at its height;
Then the darkness came on swiftly, and the gloaming turned to night.
Shattered strength and faded beauty tore the laurels from her brow;
Of the thousands who had worshiped never one came near her now.

Broken down in health and fortune, men forgot her very name,
'Till the news that she was dying woke the echoes of her fame;
And the papers in their gossip mentioned how an "actress" lay
Sick to death in humble lodgings, growing weaker every day.

One there was who read the story in a far-off country place,
And that night the dying woman woke and looked upon his face;
Once again the strong arms clasped her that had clasped her long ago,
And the weary head lay pillowed on the breast of 'Ostler Joe.

All the past had he forgotten, all the sorrow and the shame;
He had found her sick and lonely, and his wife he now could claim.
Since the grand folks who had known her one and all had slunk away,
He could clasp his long-lost darling, and no man can say him nay.

In his arms death found her laying, in his arms her spirit fled;

And his tears came down in torrents as he knelt beside her dead.
Never once his love had faltered through her base unhallowed life;
And the stone above her ashes bears the honored name of wife.

That's the blossom I fain would pluck to-day from the garden above her dust;
Not the languorous lily of soulless sin or the blood-red rose of lust;
But a sweet, white blossom of holy love that grew in the one green spot
In the arid desert of Phryne's life where all was parched and hot.

GEORGE R. SIMS.

THE MURDERER.

[AN UNPUBLISHED POEM BY EDGAR ALLEN POE.]

Ye glittering stars! how fair ye shine to-night,
And O, thou beauteous moon! thy fairy light
Is peeping thro' those iron bars so near me.
How silent is the night—how clear and bright!
I nothing hear, nor aught there is to hear me.
Shunned by all, as if the world did fear me;
Alone in chains! Ah, me! the cursed spell
That brought me here. Heaven could not cheer me
Within these walls—within this dark cold cell,
This gloomy, dreary, solitary hell.

And thou, so slow, O Time! so passing slow;
Keeping my soul in bondage, in this woe
So torturing—this uncontrollable pain;
Was I to blame? I was they say. Then so
Be it. Will this deep, sanguinary stain
Of my dark crime forever haunt my brain?
Must I live here and never, never hear
The sweetness of a friendly voice again?
Must I this torture feel year after year?
Live, die in hell, and Paradise so near?

Am I dead to Thee, O Christ? Thou who sought
The prisoner in his lonely cell; taught
Him to feel the enchantment of Thy love—
Am I dead to Thee? Canst Thou not be brought
By prayer from Thy celestial throne above
Into this darkened cell? Dost thou, too, reprove
My soul? Thou, too, doom it to endless misery!
Am I so hardened that I cannot move
The divine, forgiving love in Thee?
Canst Thou be Christ and have no love for me?

What! lost am I? ne'er will I feel the bliss
Of heaven? Ne'er feel the joys above this
World of sin? What! never? Is my destiny
Hell? Into that dark, fathomless abyss
Of sin and crime? Into that misery
Eternal? Into that unquenchable sea
Of fire? Is there my future—is it there?
Ah! it comes before my eyes. See! see! Ye
Infernal fiends! Why come ye here. How dare
Ye come? Away! mock me not with your stare!

Away ye fiends! Why at me now? Am I
Not hardened yet? Am I not fit for hell? Why
Test me again? O horrors, hear the groans
Of tortured victims! Ah! see them lie
Bleeding and in chains! Hear the mocking moans
Of the madden'd demons, in deep, wild tones!
See them hurl their victims into the hot mire!
Now see the devils dance! What! are they stones?
Have they no hearts, no love, no kind desire?
Fearfully reveling 'midst Jehovah's fire!

Cries, cries! horrible cries assail my ears!
I see her! My murdered victim now appears
Before me! Hear her pleading for mercy;
Ah! see her stare, with eyes swollen with tears;
Horrors! see her white arms outstretched to me,
Begging for life! O woe! O misery!
Take me demons! take me out of this cell;
Satan, I'm thine! Hear, hear, I call on thee;
Torture me—rack me with the pains of hell;
Do what thou wilt, but break this madd'ning spell.

Listen! What's that? My soul, they come, they come!
The demons come to take thee to thy home!
See, see! No, no! O heavens! What brought this
Pale skeleton here! Speak! speak! What! dumb?
And has thou naught to say? What is thy office?
Away, fiend! What! move not for me! What is
Thy want? Speak, devil, speak! Come, come, unsheath
Thy tongue. Com'st thou from the dark abyss
Of sin? Hold, hold! I know thee—my breath!
Ha! ha! I know thee now—'tis Death! 'tis Death!

TWENTY YEARS AGO.

I've wandered to the village, Tom; I've sat beneath the tree,
Upon the school-house play-ground, that sheltered you and me,
But none were left to greet me, Tom, and few were left to know,
Who played with us upon the green, some twenty years ago.

The grass is just as green, Tom; barefooted boys at play
Were sporting, just as we did then, with spirits just as gay,
But the "master" sleeps upon the hill, which, coated o'er with snow,
Afforded us a sliding-place, some twenty years ago.

The old school-house is altered now; the benches are replaced
By new ones, very like the same our penknives once defaced;
But the same old bricks are in the wall, the bell swings to and fro
Its music's just the same, dear Tom, 'twas twenty years ago.

The boys were playing some old game, beneath that same old tree;
I have forgot the name just now—you've played the same with me,
On that same spot; 'twas played with knives, by throwing so and so;
The loser had a task to do—there, twenty years ago.

The river's running just as still; the willows on its side
Are larger than they were, Tom; the stream appears less wide;
But the grape-vine swing is ruined now, where once we played the beau,
And swung our sweethearts—pretty girls—just twenty years ago.

The spring that bubbled 'neath the hill, close by the spreading beach,
Is very low—'twas then so high that we could scarcely reach;
And kneeling down to get a drink, dear Tom, I started so,
To see how sadly I am changed, since twenty years ago.

Near by that spring, upon an elm, you know I cut your name,
Your sweetheart's just beneath it, Tom, and you did mine the same.

Some heartless wretch has peeled the bark, 'twas dying sure but slow,
Just as SHE died, whose name you cut some twenty years ago.

My lids have long been dry, Tom, but tears came to my eyes;
I thought of her I loved so well, those early broken ties;
I visited the old church-yard, and took some flowers to strow
Upon the graves of those we loved, some twenty years ago.

Some are in the church-yard laid, some sleep beneath the sea;
But few are left of our own old class, excepting you and me;
And when our time shall come, Tom, and we are called to go,
I hope they'll lay us where we played, just twenty years ago.

THE OLD OAKEN BUCKET.

BY SAMUEL WOODWORTH.

How dear to this heart are the scenes of my childhood,
When fond recollection presents them to view!
The orchard, the meadow, the deep-tangled wildwood,
And every loved spot which my infancy knew!
The wide-spreading pond, and the mill that stood by it;
The bridge, and the rock where the cataract fell;
The cot of my father, the dairy-house nigh it,
And e'en the rude bucket that hung in the well:
The old oaken bucket, the iron-bound bucket,
The moss-covered bucket which hung in the well.

That moss-covered vessel I hailed as a treasure;
For often at noon, when returned from the field
I found it the source of an exquisite pleasure,
The purest and sweetest that nature can yield.
How ardent I seized it with hands that were glowing,
And quick to the white-pebbled bottom it fell!
Then soon, with the emblem of truth overflowing,
And dripping with coolness, it rose from the well;
The old oaken bucket, the iron-bound bucket,
The moss-covered bucket, arose from the well.

How sweet from the green, mossy brim to receive it;
As, poised on the curb, it inclined to my lips!
Not a full, blushing goblet could tempt me to leave it
The brightest that beauty or revelry sips.
And now far removed from the loved habitation,
The tear of regret will intrusively swell,
As fancy reverts to my father's plantation,
And sighs for the bucket that hangs in the well:
The old oaken bucket, the iron-bound bucket,
The moss-covered bucket that hangs in the well.

THE RAVEN.

Once upon a midnight dreary, while I pondered weak and weary,
Over many a quaint and curious volume of forgotten lore;
While I nodded, nearly napping, suddenly there came a tapping,
As of some one gently rapping, rapping at my chamber door.
"'Tis some visitor," I muttered, "tapping at my chamber door—
Only this, and nothing more."

Ah, distinctly I remember it was in the bleak December,
And each separate dying ember wrought its ghost upon the floor.
Eagerly I wished the morrow—vainly I had tried to borrow
From my books surcease of sorrow—sorrow for the lost Lenore—
For the rare and radiant maiden whom the angels named Lenore,
Nameless here forevermore.

And the silken, sad, uncertain rustling of each purple curtain
Thrilled me—filled me with fantastic terrors never felt before;
So that now, to still the beating of my heart, I stood repeating,
"'Tis some visitor entreating entrance at my chamber door.
Some late visitor entreating entrance at my chamber door;
This it is and nothing more."

Presently my soul grew stronger; hesitating then no longer,
"Sir," said I, "or Madam, truly your forgiveness I implore;
But the fact is I was napping, and so gently you came rapping,
And so faintly you came tapping, tapping at my chamber door,
That I scarce was sure I heard you:" here I opened wide the door.
Darkness there and nothing more.

Deep into that darkness peering, long I stood there wondering, fearing,
Doubting, dreaming dreams no mortal ever dared to dream before;
But the silence was unbroken, and the stillness gave no token,
And the only word there spoken was the whispered word, "Lenore!"
Merely this and nothing more.

Back into the chamber turning, all my soul within me burning,
Soon again I heard a tapping, somewhat louder than before.
"Surely," said I, "surely that is something at my widow-lattice;
Let me see, then, what thereat is, and this mystery explore.
Let my heart be still a moment, and this mystery explore;
'Tis the wind and nothing more!

Open here I flung the shutter, when, with many a flirt and flutter,
In there stepped a stately raven of the saintly days of yore,
Not the least obeisance made he; not an instant stopped or stayed he;
But with mien of lord or lady, perched above my chamber door—
Perched upon a bust of Pallas, just above my chamber door—
Perched, and sat, and nothing more.

Then this ebony bird beguiling my sad fancy into smiling,
By the grave and stern decorum of the countenance it wore,
"Though thy crest be shorn and shaven, thou," I said, "art sure no craven,
Ghastly, grim and ancient raven, wandering from the nightly shore,
Tell me what thy lordly name is on the Night's Plutonian shore."
Quoth the raven, "Nevermore."

Much I marveled this ungainly fowl to hear discourse so plainly,
Though its answer little meaning—little relevancy bore;
For we cannot help agreeing, that no living human being
Ever yet was blessed with seeing bird above his chamber door—
Bird or beast upon the sculptured bust above his chamber door,
With such name as "Nevermore."

But the raven, sitting lonely on the placid bust, spoke only
That one word, as if his soul in that one word he did outpour.
Nothing further then he muttered; not a feather then he fluttered—
Till I scarcely more than muttered, "Other friends have flown before;
On the morrow he will leave me, as my hopes have flown before."
Then the bird said, "Nevermore."

Startled at the stillness broken by reply so aptly spoken,
"Doubtless," said I, "what it utters is its only stock and store,
Caught from some unhappy master whom unmerciful disaster
Followed fast and followed faster till his song one burden bore—
Till the dirges of his hope that melancholy burden bore—
Of 'Never—Nevermore.'"

But the raven, still beguiling all my sad soul into smiling,
Straight I wheeled a cushioned seat in front of bird, and bust, and door;
Then, upon the velvet sinking, I betook myself to linking
Fancy into fancy, thinking what this ominous bird of yore
Meant in croaking "Nevermore."

This I sat engaged in guessing, but no syllable expressing
To the fowl whose fiery eyes now burned into my bosom's core;
This and more I sat divining, with my head at ease reclining
On the cushion's velvet lining that the lamplight gloated o'er—
She shall press, ah, nevermore!

Then, methought the air grew denser, perfumed from an unseen censer,
Swung by seraphim whose footfalls tinkled on the tufted floor.
"Wretch," I cried, "thy God hath lent thee—by these angels he hath sent thee
Respite—respite and nepenthe from thy memories of Lenore!
Quaff, oh quaff this kind nepenthe, and forget this lost Lenore!"
Quoth the raven, "Nevermore."

"Prophet!" said I, "thing of evil, prophet still, if bird or devil!
Whether Tempter sent, or whether tempest tossed thee here ashore,
Desolate, yet all undaunted, on this desert land enchanted—
On this home by Horror haunted—tell me truly, I implore—
Is there—is there balm in Gilead? Tell me, tell me, I implore!"
Quoth the raven, "Nevermore."

"Prophet!" said I, "thing of evil, prophet still, if bird or devil!
By that heaven that bends above us—by that God we both adore—
Tell this soul with sorrow laden if, within the distant Aiden,
It shall clasp a sainted maiden whom the angels name Lenore—
Clasp a rare and radiant maiden whom the angels name Lenore?"
Quoth the raven, "Nevermore."

"Be that word our sign of parting, bird or fiend!" I shrieked, upstarting—
"Get thee back into the tempest and the Night's Plutonian shore!
Leave no black plume as a token of that lie thy soul hath spoken!
Leave my loneliness unbroken! Quit the bust above my door!
Take thy beak from out my heart, and take thy form from off my door!"
Quoth the raven, "Nevermore."

And the raven, never flitting, still is sitting, still is sitting,
On the pallid bust of Pallas, just above my chamber-door;
And his eyes have all the seeming of a demon's that is dreaming,
And the lamplight o'er him streaming throws his shadow on the floor,
And my soul from out that shadow that lies floating on the floor,
Shall be lifted, nevermore.

—*Edgar Allan Poe.*

ROCK ME TO SLEEP.

Backward, turn backward, O Time, in your flight,
Make me a child again just for to-night!
Mother, come back from the echoless shore,
Take me again to your heart as of yore.
Kiss from my forehead the furrows of care,
Smooth the few silver threads out of my hair;
Over my slumbers your loving watch keep;
Rock me to sleep, mother,—rock me to sleep!

Backward, flow backward, O tide of the years!
I am so weary of toil and of tears,—
Toil without recompense, tears all in vain,—
Take them, and give me my childhood again!
I have grown weary of dust and decay,—
Weary of flinging my soul-wealth away;
Weary of sowing for others to reap;
Rock me to sleep, mother,—rock me to sleep!

Tired of the hollow, the base, the untrue,
Mother! O mother! my heart calls for you!
Many a summer the grass has grown green,
Blossomed, and faded our faces between,
Yet with strong yearning and passionate pain
Long I to-night for your presence again.
Come from the silence so long and so deep;—
Rock me to sleep, mother,—rock me to sleep!

Over my heart in the days that are flown,
No love like mother-love ever has shone;
No other worship abides and endures,—
Faithful, unselfish, and patient like yours;
None like a mother can charm away pain
From the sick soul and the world-weary brain.
Slumber's soft calms o'er my heavy lids creep;—
Rock me to sleep, mother,—rock me to sleep!

Come, let your brown hair, just lighted with gold,
Fall on your shoulders again as of old;
Let it drop over my forehead to-night.
Shading my faint eyes away from the light;
For with its sunny edged shadows once more
Haply will throng the sweet visions of yore;
Lovingly, softly, its bright billows sweep;—
Rock me to sleep, mother,—rock me to sleep!

Mother, dear mother, the years have been long
Since I last listen'd your lullaby song;
Sing, then, and unto my soul it shall seem
Womanhood's years have been only a dream.
Clasped to your heart in a loving embrace,
With your light lashes just sweeping my face,
Never hereafter to wake or to weep;
Rock me to sleep, mother,—rock me to sleep.

E. A. Allen.

MAID OF ATHENS.

Maid of Athens, ere we part,
Give, oh, give me back my heart!
Or, since that has left my breast,
Keep it now and take the rest!
Hear my vow before I go,
My life, I love you.

By those tresses unconfined,
Wooed by each Egean wind;
By those lids whose jetty fringe
Kiss thy soft cheeks' blooming tinge;
By those wild eyes like the roe,
My life, I love you.

By that lip I long to taste,
By that zone-encircled waist;
By all the token-flowers that tell
What words can never speak so well;
By love's alternate joy and woe,
My life, I love you.

Maid of Athens, I am gone;
Think of me, sweet! when alone,—
Though I fly to Istambol,
Athens holds my heart and soul;
Can I cease to love thee? No!
My life I love you.

—Lord Byron.

Familiar Quotations

The following selection of epigrams, proverbs, "wise saws," and original conceptions include some of the brilliant passages of standard authors — gleams of sunlight which here and there flash through the foliage of thought — as well as many gems of anonymous origin. They will be found not only full of entertainment and instruction, but useful where a pertinent quotation is required to illustrate ideas either in speech or writing.

WORDS OF WIT AND WISDOM.

'Tis strange the miser should his care employ,
To gain those riches he can ne'er enjoy.—*Pope.*

If you would not have affliction visit you twice, listen at once to what it teaches.

Some sort of charity will swallow the egg and give away the shell.

A word of kindness is seldom spoken in vain. It is a seed which, even when dropped by chance, springs up a flower.

Mean souls, like mean pictures, are often found in good-looking frames.

A child is eager to have any toy he sees, but throws it away at the sight of another, and is equally eager to have that. We are most of us children through life, and only change one toy for another from the cradle to the grave.

Learning is wealth to the poor, an honor to the rich, an aid to the young, and a support and comfort to the aged.

Love is the strongest holdfast in the world; it is stronger than death.

Hope and fear, peace and strife.
Make up the troubled web of life.

False friendship, like the ivy, decays and ruins the wall it embraces; but true friendship gives new life and animation to the object it supports.—*Burton.*

A man who hoards riches and enjoys them not is like the ass which carries gold yet eats thistles.

People should remember that it is only great souls that know how much glory there is in doing good.

Happiness is a perfume that one can not shed over another without a few drops falling upon himself

With love the heart becomes a fair and fertile garden, glowing with sunshine and warm hues, and exhaling sweet odors; but without it, it is a bleak desert covered with ashes.

Prosperity is no just scale, adversity is the only true balance to weigh friends.

To discover what is true, and to practice what is good, are the two most important objects of life.

Life has its hours of bitterness,
Its joys, its hopes and fears;
Our way is sometimes wreathed with smiles,
And then baptized with tears.

Prosperity is not without its trouble, nor adversity without its comfort.

As riches and favor forsake a man we discover him to be a fool, but nobody could find it out in his prosperity.—*Bruyère.*

Troubles are like babies—they only grow bigger by nursing.

You can not injure anyone by elevating poor fallen humanity. It is the noblest work man can engage in, not only to elevate himself but to elevate others.

Happiness is a butterfly, which, when pursued, is always just beyond your grasp, but which, if you will sit down quietly, may come and alight on you.

Purchase not friends with gifts; when thou ceasest to give, such will cease to love.—*Fuller.*

By humility, and the fear of the Lord, are riches, and honor and life.—*Proverbs.*

Life appears to be too short to be spent in nursing animosities or registering wrongs.

If thou wouldst be borne with, bear with others.—*Fuller.*

Ladies who have a disposition to punish their husbands should recollect that a little warm sunshine will melt an icicle much sooner than a regular northeaster.

A wise man knows his own ignorance; a fool thinks he knows everything.

Cyrus, the conqueror of Babylon, of whom we read in the Bible, was once asked what was the first thing he learned. "To tell the truth," was the reply.

Every man can and should do something for the public, if it be only to kick a piece of orange-peel into the road from the pavement.

A rich man who is not liberal resembles a tree without fruit.

How brightly do little joys beam upon a soul which stands on a ground darkened by clouds of sorrow! So do stars come forth from the empty sky when we look up to them from a deep well.

It it not going into the furnace, but the coming out, which demonstrates the metal.

Indulging in dangerous pleasures, saith a Burmese proverb, is like licking honey from a knife and cutting the tongue with the edge.

There are more poor willing to give charity from their necessity than rich from their superfluities.

Wealth does not always improve us. A man as he gets to be worth more may become worth-less.

The greatest friend of truth is time, her greatest enemy prejudice, and her constant companion is humility.—*Colton.*

Beauty unaccompanied by virtue is a flower without perfume.

Virtue, like a dowerless beauty, has more admirers than followers.

Never trouble trouble till trouble troubles you.

Whoso hath this world's goods, and seeth his brother have need, and shutteth up his bowels of compassion from him, how dwelleth the love of God in him.—*1 John.*

Every good deed is a benefit to the doer as sure as to the receiver.

We should value affliction as we do physic—not by its taste, but by its effects.

He that giveth unto the poor shall not lack, but he that hideth his eyes shall have many a curse.—*Proverbs.*

Most of the shadows that cross our pathway through life are caused by our standing in our own way.

Avarice is like a graveyard; it takes all that it can get and gives nothing back.

It is not wealth, but wisdom, that makes a man rich.

Virtue, like a rich stone, looks best when plainest set.

The duties and burdens of life should be met with courage and determination. No one has a right to be a wart on the fair face of nature, doing nothing useful, producing nothing of utility or value. It is a gross and fatal error to suppose that life is to be enjoyed in idleness. It can never be.

If a man be gracious to strangers, it shows he is a citizen of the world, and that his heart is no island cut off from the other lands, but a continent that joins them. —*Bacon.*

True friendship is like sound health, the value of it is seldom known until it is lost.

All our affections are but so many doors to let in Christ.

Much wanted more, and lost all.

Troubles are like hornets, the less ado you make about them the better, for your outcry will only bring the whole swarm upon you.

God lays us upon our backs that we may look heavenward.

The more liberal we are to others from a principle of faith and love, the more liberal God will be to us.

The flowers that breathe the sweetest perfume into our hearts bloom upon the rod with which Providence chastises us.

Be not stingy of kind words and pleasing acts, for such are fragrant gifts, whose perfume will gladden the heart and sweeten the life of all who hear or receive them.

Rare as is true love, true friendship is still rearer. —*Rochefoucauld.*

Learning by study must be won;
'Twas ne'er entailed from sire to son.
—*Gay.*

The violet grows low, and covers itself with its own tears, and of all flowers yields the sweetest fragrance. Such is humility.

We should not forget that life is a flower, which is no sooner fully blown than it begins to wither.

He who has other graces, without humility, is one who carries a box of precious powder without a cover on a windy day.

Heaven's gates are not so highly arched as princes' palaces. They that enter there must go upon their knees.—*Webster.*

God strikes not as an enemy to destroy, but as a father to correct.

This may be said of love, that if you strike it out of the soul, life would be insipid and our being but half animated.

It is better to be poor, with a good heart, than rich, with a bad conscience.

From the walks of humble life have risen those who are the lights and landmarks of mankind.

The universal lot,
To weep, to wander, die, and be forget.
—*Sprague.*

The path of sorrow, and that path alone,
Leads to the land where sorrow is unknown;
No traveler ever reached that blest abode,
Who found not thorns and briars in his road.
—*Cowper.*

He that does good for good's sake seeks neither praise nor reward, though sure of both at last.

Living in the fear of God takes away the fear of death; for the sting of death is sin.

Nothing is more dangerous than a friend without discretion; even a prudent enemy is preferable.—*La Fontaine.*

The grand essentials to happiness in this life are, something to do, something to love, and something to hope for.

He that has never known adversity is but half acquainted with others, or with himself. Constant success shows us but one side of the world; for, as it surrounds us with freinds, who will tell us only our merits, so it silences those enemies from whom only we can learn our defects. —*Colton.*

Base all your actions upon a principle of right; preserve your integrity of character, and, doing this, never reckon the cost.

Adversity is the trial of principle. Without it a man hardly knows whether he is honest or not.—*Fielding.*

Never be cast down by trifles. If a spider break his web twenty times, twenty times will he mend it. Make up your mind to do a thing and you will do it.

A covetous man lives without comfort, and dies without hope.

Whoso stoppeth his ear at the cry of the poor, he also shall cry himself, but shall not be heard.—*Proverbs.*

Value the friendship of him who stands by you in storms. Swarms of insects will surround you in sunshine.

Pleasures have honey in the mouth, but a sting in the tail, and often perish in the budding.

Religion teaches the rich humility, and the poor contentment.

It is far more easy to acquire a fortune like a knave, than to expend it like a gentleman.—*Colton.*

Excesses in our youth are drafts upon our old age, payable, with interest, about thirty years after date.

Riches and true excellence are seldom found together.

The use of money is all the advantage there is in having it.

Truth is a mighty weapon when wielded by the weakest arm.—*Fletcher.*

HOW TO WRITE A BUSINESS LETTER

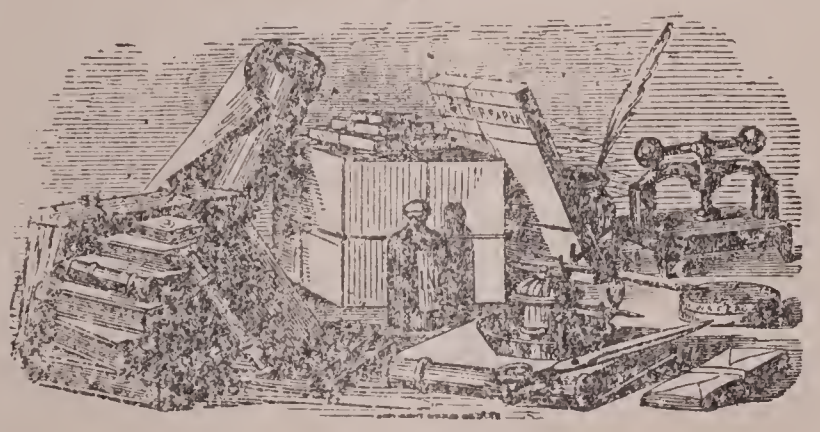
CONSIDERING the vast amount of business transacted by correspondence between the parties, Letter Writing seems only second in importance to book-keeping. The merchant of the smaller cities or towns, perhaps in the far west, desires to order articles of merchandise from the wholesale house in New York or Boston. Possibly a remittance is to be sent. It may be that an error has occurred and needs correction. Credit is to be asked, references given, and a multitude of other matters call for adjustment through correspondence. To write every conceivable variety and shade of meaning, expressing the proper thought in the most fitting and appropriate language, is indeed a rare and valuable accomplishment. And when the proper language takes on the graceful and business like air of the well written letter, with its several parts harmoniously arranged, it is a combination of brain and skill which can hardly be overestimated.

This subject, therefore, naturally divides itself into two parts: *The Mechanical Structure*, and the *Literature of a Letter*. The former of these being the less difficult will be first considered.

THE STRUCTURE OF A BUSINESS LETTER,

Consists in the arrangement of its several parts, with a view to the most harmonious effect. Excellent penmanship is very desirable, but not absolutely essential. The penmanship may indeed be poor, but the arrangement of the several parts of the letter, the neatness, and finish, may be such as to give it an attractive appearance, while on the other hand, the letter may be clothed in the most elegant penmanship, and yet the construction be such as to stamp its author as a careless and indifferent person, devoid of precision and order.

No one great thing, but many little things carefully watched, and attentively practiced, make up the structure and dress of a business letter, and give it a business-like air. The penmanship should be a neat, strong hand, very plain and legible, and devoid of all flourish.



PAPER AND ENVELOPE.

The paper and envelopes used in business correspondence should be of a good, durable quality, and a white color is preferable. Cheap materials are not only unsatisfactory to the writer, but may give the reader an unfavorable impression, which would be an injury far exceeding the cost of the best stationery for a life time. Persons form impressions from very little things sometimes.

The size of a letter sheet in business correspondence should be about 8x10 inches. This sheet affords a sufficient space for a communication of ordinary length to be written on one side only, which is essential in case the letter is copied in a letter press. A sheet of paper, note size, (5x8) is oftentimes used for brief communications of no special importance, and not designed to be filed for future reference. Among professional men the commercial note sheet is more extensively used, but with business men the letter size is considered preferable.

The envelope should correspond in size to that of the letter sheet, and should be a trifle longer than one-half the length of the sheet. Thus in a sheet eight by ten inches, one-half the length of the sheet is five inches, and this requires the length of the envelope to be about five and a quarter inches. Its width is usually about three inches. Avoid the use of fancy colored and fancy shaped paper and envelopes. These may not be objectional in social correspondence among ladies, but the gravity of business affairs does not admit of such display.

THE HEADING.

With most firms engaged in business it has become a custom to have the business advertisement placed at the head of the letter page, together with street, number and city. Thus leaving only the date to be inserted to complete the heading.

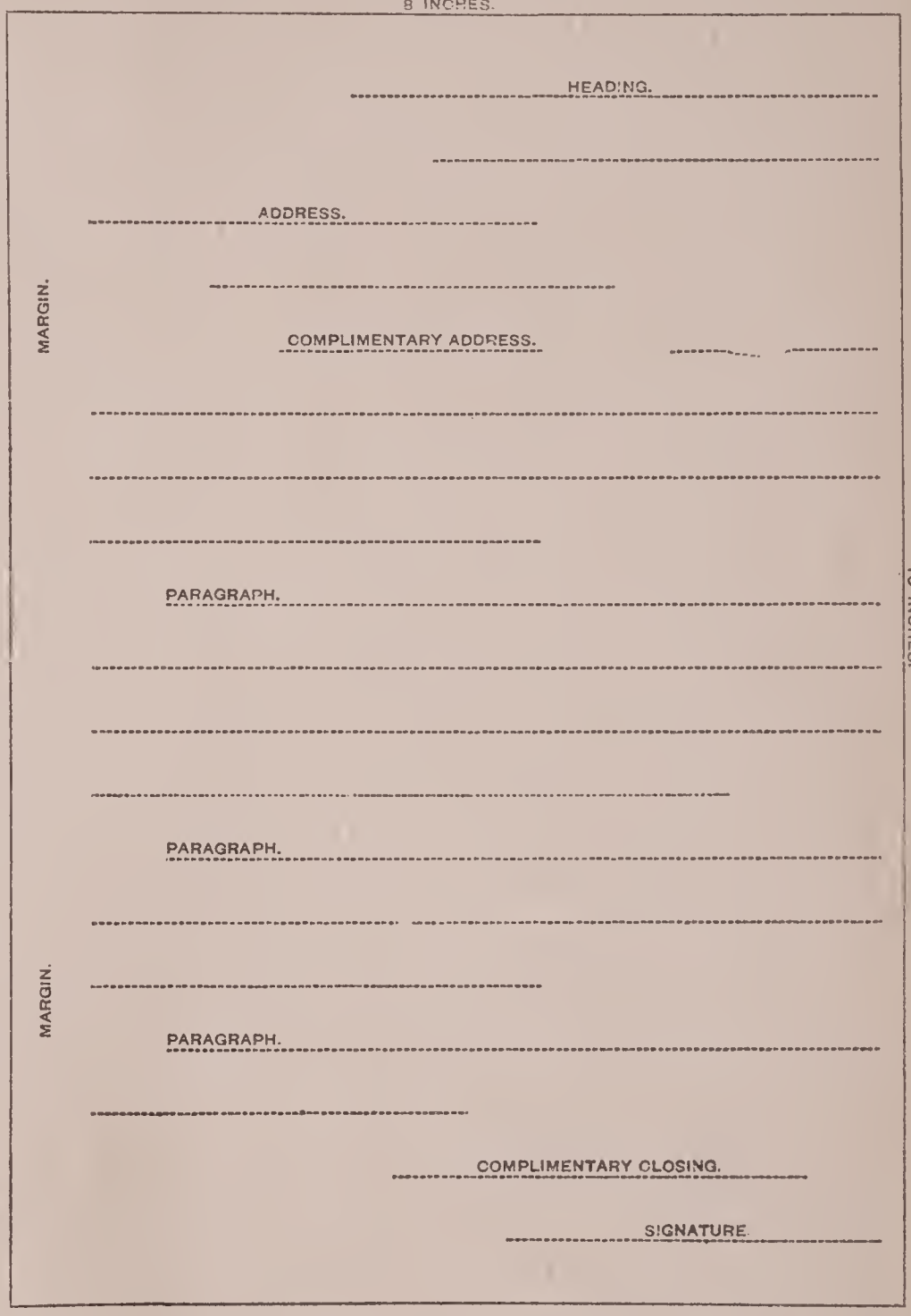
In case the heading of the letter is to be entirely written, it should be placed so as to occupy the right hand half of the first two lines at the top of the page. If, however, the letter is to be a very brief one, occupying only three or four lines, the heading may then be placed lower down on the sheet, so as to bring the body of the letter about the center of the sheet.

Writing from a large city the heading should contain the street and number. Your correspondent, in directing his answer will rely on the address given in the heading of your letter. Never be guilty of the blunder committed by ignorant persons of placing a part of the heading under the signature.

765 Market Street,

Philadelphia, June 10, 1882.

DIAGRAM OF THE STRUCTURE OF A LETTER.



The second line of the heading should begin a little farther to the right than the first line, as seen above.

If the writer has a box at the Post Office and wishes his mail delivered there, he may head his letter, as on the following page:

CHAS. A. ROBERTS. WM. J. DENNIS.

OFFICE OF

ROBERTS & DENNIS,

DEALERS IN FANCY AND STAPLE GROCERIES,

320 JEFFERSON STREET,

Burlington, Ia., ——— 18——

P. O. Box 3587,

New York, May 16, 1882.

Writing from the principal cities of the United States it is not necessary to make the name of the state a part of the heading, as that is supposed to be known and understood, but with smaller cities the name of the state also, should be given. Thus, there is a Quincy in Illinois, and also in Massachusetts, and unless the state were mentioned a person answering a letter from Quincy, would not know which state to direct his reply to. In writing from an obscure town or village, not only the state should be given, but the county as well.

Ottawa, LaSalle County, Ill.,

December 20, 18 .

The punctuation of the heading and other parts of the letter, is of great importance in the estimation of cultivated persons, and something which can be learned by a little attention on the part of anyone, in examining the forms here given.

MARGIN.

A margin three-quarters of an inch in width should be left, on the side of the letter, as shown in the diagram. This is convenient for any mark or memorandum which your correspondent may desire to make concerning anything contained in the letter, but its greater value lies in the open, airy, and cheerful dress which it imparts to the letter. A margin too narrow conveys the idea of stinginess, as if to economize paper, while an irregular or zigzag margin conveys the idea of carelessness or want of precision. On a sheet of note paper the margin may be only one-half inch in width, thus making its width proportionate to the size of the sheet.

ADDRESS.

On the next line below the heading, that is the third line from the top of the sheet, and beginning at the left margin, should be placed the *Address*, which consists of the name of the person to whom the letter is written, together with his titles, if any, and his place of residence or business. The letter is not complete without all this, in the estimation of the business man. It does not fully explain itself, if the place of residence is not down as well as the name, and in preserving a letter press copy, this is quite essential for future reference.

Messrs. Samuel Bliss & Co.

Reading, Pa.

Gentlemen:

Or if the letter is written to a person living or doing business in a large city, thus:

Mr. James M. Cummings,

645 Broadway, New York.

Sir:

The names and residence should not be allowed to extend further to the right than about the center of the sheet, thus leaving an open space between this and the heading of your letter. In case the names or place of residence should be so long as to require it, they may be placed thus:

Messrs. Richards, Shaw, Fitch

& Winslow, Chicago.

Gentlemen:

The words *Dear Sir* or *Gentlemen* are sometimes placed farther to the left, as in the above example, but most business men in their correspondence place this complimentary address with reference to the words above them, about three-quarters of an inch farther to the right, as shown below.

William D. Nelson, Esq.,

177 Erie St., Boston.

Dear Sir:

The custom of placing the address beneath the body instead of at the beginning of the letter, is not much in vogue in business circles in this country, most business men preferring to place the name and address at the head of the sheet, and then write at it as if they were talking to the person himself. When, however, the address is placed below the letter it should occupy the same position as to the margin, etc., as if placed at the beginning. The custom is borrowed from the English, and its use is confined mostly to government officials and professional men.

BODY OF THE LETTER.

This constitutes the written message. It should begin on the same line with the words *Dear Sir*, or

Gentlemen, leaving after these words a small space. In case the place of residence or business is not written in the address, then the complimentary address of *Dear Sir* or *Gentlemen* will be placed on the next line under the name, or fourth line from the top of the sheet, and the letter will begin on the fifth line from the top, thus:

Mr. Henry L. Dunham,

Dear Sir:

In answer to your esteemed favor

Sometimes for the sake of convenience, and the saving of time and labor, the letter head has printed in the left corner, above the address, a blank form of memorandum as follows:

Referring to yours of..... } OR, In reply to your favor of....., }

and after this introduction the writer is able speedily to get at the marrow of his letter, without acknowledging the receipt of a former communication.

The body of the letter should be divided into as many paragraphs as there are distinct subjects in the letter, or a new paragraph should be commenced at every change of the subject. The habit which some persons have of tacking one subject to the end of another, and thus making a letter one continuous paragraph of mixed up information, instructions and requests, is extremely objectionable. It destroys the force of what is said, instead of fixing each thought clearly on the mind of the reader; it leaves him confused, and he reads a second time and tries to get his ideas fixed and systematized, or he throws aside the letter until he has more time in which to study it and get the meaning clear.

If the letter is long and is really concerning only one subject, then it may properly be divided into paragraphs by separating the different divisions of the subject, and giving a paragraph to each. These should be arranged in their logical order. Wherever the letter is to contain numerous paragraphs to avoid omitting any of the items, it is best to jot them down on a slip of paper, then embody them in the letter in their natural order.

The first word of each paragraph should be indented, or moved in from the margin, usually about the width of the margin. Thus if the margin is three-fourths of an inch in width, the paragraph should begin three-fourths of an inch from the margin. Some writers, however, prefer to commence the first word of the paragraph an inch from the margin, and it is really not so essential what the distance is, as that it should be uniform, and all the paragraphs begin alike. A little attention is necessary here. In ordering goods make each article a separate paragraph.

COMPLIMENTARY CLOSING AND SIGNATURE.

The complimentary closing consists of such words as *Yours truly*, *Respectfully*, etc., and should be placed on the next line beneath the last one occupied by the body of the letter, commencing a little to the right of the middle. The signature should be placed underneath the words of respect, and begin still a little farther to the right. Thus the conclusion of the letter will correspond in position and arrangement with the heading.

Yours truly,

John Maynard.

The language of the complimentary closing should be governed by the relation between the parties, and should correspond with the complimentary address. The first letter between strangers should commence with *Sir* and end with the word *Respectfully*. After the exchange of a few letters and a sort of business acquaintance may be said to exist between the correspondents, then *Dear Sir*, and *Yours truly*, may properly be introduced. A little more cordial would be such a conclusion as the following:

Yours very truly,

Arnold, Constable & Co.

The man of business is apt, however, to have one stereotyped beginning and ending to all his letters, and seldom stops to discriminate between strangers and old customers in this respect. Often the conclusion may be connected to the closing paragraph with perfect grace and ease thus:

Hoping to receive the goods without delay, I remain,

Respectfully,

Henry P. Bowen.

In the signature of a letter, especial care should be exercised. Bear in mind that names of persons are not governed by the rules of spelling, and words which precede or follow, proper names will not aid us in deciphering them if they are poorly written.

A MODEL BUSINESS LETTER.

146 S. Tenth Street,
Cincinnati, March 11, 18 .

Messrs. Arnold, Constable & Co.,
Broadway & 19th Sts, New York.

Gentlemen: Inclosed please find New York Exchange in settlement of your Invoice of the 1st inst. less Cash discount.

Amount of Invoice,	$325.80
Cash discount 5 o/o.	16.29
Draft inclosed	$309.51.

The goods have been received, and are very satisfactory in both quality and price. You may expect another order soon.

Yours truly,
James J. Wilson & Co

The young person who would learn to write a good business letter, should, with pen, ink and suitable paper, sit down and practice faithfully after the above model. Write and re-write it a dozen times or more, until your letter resembles it closely. Then take any of the models for letters given near the close of this chapter, and with this matter, write a letter which will conform with the foregoing model in appearance and dress. Write the same matter over again, and improve it in its defects. Criticise each line and word. See that no words or letters are omitted, and that the punctuation is according to the models in this book. Eliminate all ungainly letters, shorten the loops, see that each letter rests on the line, and that, withal your page is clean and regular.

The person who will thus devote a little earnest study and practice, may early acquire the valuable accomplishment of writing a pleasing business letter, so far as the mechanical structure goes.

ADDRESSING THE ENVELOPE.

After the letter is finished, and while it yet lies open before you, the Envelope should be addressed. As before stated, the directions on the envelope must conform to the address at the beginning of the letter, hence the necessity for addressing the envelope before the letter is folded.

The first line of the address of the envelope should consist of the name of the person or firm to whom the letter is written, together with any appropriate titles, and should be written across or a little below the middle of the envelope, but never above it, beginning

near the left edge. The space between this first line and the bottom of the envelope should be about equally divided among the other lines, each of which begins still farther to the right than the one above, thus:

Messrs. Arnold, Constable & Co.,
Cor. Broadway & 19th Sts.,
New York City.

When writing to a person in a large city the number and street should be a part of the address, and may be placed as in the above form, or in the left hand lower corner as follows:

Lewis K. Taylor, Esq.,
Chicago,
118 Wabash Ave. Ill.

In case the letter is addressed in care of any one this should be placed in the lower left corner. If a letter of introduction, the words *Introducing Mr. John Smith*, or similar words, should be placed in this corner.

Letters addressed to small towns or villages should bear the name of the county as follows:

Mr. Henry D. Chambers,
Washington,
Porter County,
Pa.

Or the name of the county may be placed in the lower left corner. The Post Office box number is usually placed in the lower left corner.

FOLDING A LETTER

Having written an excellent letter, and faultlessly addressed the envelope, all may be easily stamped as unbusiness-like, and spoiled, by improperly performing so simple a part as the folding. Remember that excellent rule that, whatever is worth doing should be well done.

With the letter sheet lying before you, turn the bottom edge up so that it lies along with the top edge, thus making a fold in the middle, which press down with the thumb nail or with a paper folder. Then fold the right edge over so that it falls two-thirds the distance across the sheet, and press down the edge. Next fold the left edge of the sheet over to the right, breaking the fold at the edge of the part folded over just before.

In case a check, note, draft, bill or currency is to be sent by letter, it should be placed on the upper half of the sheet as it lies open, and then the letter should be folded the same as if it were not there. This will fold the paper or document in the letter so that it will be difficult to extract it while being transmitted in the mails, and so that it will not be dropped or lost in opening the letter.

The letter is now folded so that it will be of equal thickness in every part of the envelope. Insert the last broken or folded edge in the envelope first, with

the original edges of the sheet at the end of the envelope which the stamp is on; when taken from the envelope the letter will then be proper side up.

THE LITERATURE OF A LETTER.

To be able to compose a letter requires more ability than to give it the proper arrangement and mechanical dress. A mind well stored with useful knowledge as well as command of language, is necessary in writing a letter on general subjects. The strictly business letter requires a thorough understanding of the facts concerning which the letter is written, and these facts to be set forth in plain and unmistakable language. All display of rhetoric or flourish of words is entirely out of place in the sober, practical letter of business. The proper use of capital letters, punctuation, and correct spelling are essential to the well written letter, and with a little care and striving may be easily acquired.

ARRANGEMENT OF ITEMS.

As stated before, each item or subject in a letter should be embraced in a separate paragraph. These should be arranged in the order in which they would naturally come, either in point of time, importance, or as regards policy. Never begin a letter abruptly with a complaint, but rather bring in all unpleasant subjects toward the close. If an answer to a letter of inquiry, take up the questions as they are asked, indicate first what the question is, and then state clearly the answer. The first paragraph should acknowledge the receipt of the communication now to be answered, giving date and indicating its nature and contents, thus:

Your letter of the 10th instant concerning damaged goods is received, etc.

The closing paragraph usually begins with such words as *Hoping*, *Trusting*, *Awaiting*, *Thanking*, or similar expressions, and is complimentary in its tone and designed as a courtesy.

BREVITY.

Business letters should be brief and to the point. The best letter states clearly all the facts in the fewest words. Brevity is not inconsistent with a long letter, as so much may need to be said as to require a long letter, but all repetitions, lengthy statements and multiplication of words should be avoided. Use short sentences, and make every word mean something. Short sentences are more forcible, and more easily understood or remembered, than long drawn out utterances.

STYLE.

Style refers to the tone, air, or manner of expression. Dignity and strength should characterize the style of the business letter. No ornament of expression or eloquence of language is necessary or appropriate in a correspondence between business men. Come to your meaning at once. State the facts. Let every sentence bristle with points.

The successful business man must possess energy, decision, and force, and these qualities should be conspicuous in his correspondence in order to command respect. Never use loose or slang expressions. The business man should be a *gentleman*. Indulge in no display of superior knowledge or education, but temper each paragraph with respect and deference to others. The learner who would aspire to write a good letter, should, after having finished his attempt, go over each sentence carefully and wherever the pronoun I occurs, modify the expression so as to leave this out.

ORDERING GOODS.

In ordering goods of any kind, care should be used to state very explicitly the color, size, quality, and quantity of the articles desired. If manufactured goods, the name of the manufacturer, or his trade mark or brand should be given. Also state when you desire the goods shipped and in what way. If by freight or express, state what Freight line or Express Company.

SENDING MONEY BY LETTER.

Paper currency should seldom be trusted to pass through the mails, as the liability to loss is too great. Better send draft or P. O. money order, and in every case the amount of the remittance should be stated in the letter, and also whether by draft or otherwise sent. The letter may become important evidence in regard to payment at some future time.

INSTRUCTIONS.

In giving instructions to agents, manufacturers and others, let each order occupy a separate paragraph. State in unmistakable language the instructions desired to be conveyed. If possible a diagram or plan should be enclosed in the letter. Cautions and complaints, if any, should be clearly set forth in paragraphs near the close of the letter.

A DUNNING LETTER

State when the debt was contracted, its amount, the fact of it having been long past due, the necessity for immediate payment, and any other facts depending on

the peculiarities of the case, which it may seem best to make use of, such as promises to pay, which have not been met; the inconvenience as well as injury and distrust caused by such irregularities, etc.

LETTERS OF INTRODUCTION.

Be just and truthful, avoiding any stereotyped form in letters of introduction. Never give a letter of introduction unless you have entire confidence in the person to whom it is given; it may reflect on your character or be used against you. Be very guarded that no expressions may be construed into a letter of credit, thus making the writer liable for payment. Use no unfounded statements or assertions, over-estimating your friend, as these may prove untrue.

Willing to extend a favor to a friend by giving a letter of introduction, do not be guilty of introducing him to any one in whom he may not place confidence, as he might be a loser by such.

Form of a Letter Ordering Goods.

128 Jackson Street,
RICHMOND, VA., May 24, 18—.

Messrs. JONES & SMITH,
867 Market St., Philadelphia.

Gentlemen: Please ship me by Fast Freight as soon as possible the following goods:

3 hhds. N. O. Molasses.
1 bbl. Granulated Sugar.
5 chests English Breakfast Tea.
2 sacks Mocha Coffee, wanted not ground.
5 boxes Colgate's Toilet Soap.

I will remit the amount of the invoice immediately upon the receipt of the goods.

Yours respectfully,
JAMES C. ADAMS.

Ordering Goods and Enclosing Price.

RICHMOND, IND., Dec. 29, 18—.

Messrs. MARSHALL FIELD & Co.,
Chicago, Ill.

Gentlemen: Please forward me by American Express at once

1 Lancaster Spread,	$3.50
12 yds. Gingham, small check. (15c.)	1.80
3 doz. Napkins ($3.00),	9.00
	$14.30

For which I inclose P. O. Money order.
Hoping to receive the goods without delay, I am,
Respectfully,
WILLIAM L. MILLER.

Desiring to Open an Account.

DAYTON, OHIO, Oct. 12, 18—

Messrs. HOLMES & WILSON,
Detroit, Mich.

Gentlemen: Having recently established myself in the retail Hardware trade in this city, with fair prospects of success, and being in need of new goods from time to time, would like to open an account with your highly respectable house.

My capital is small, but I have the satisfaction of knowing that what little I possess is the fruit of my own industry and saving. I can refer you to the well known firm of Smith, Day & Co., of this city, as to my character and standing.

Should my reference prove satisfactory, please forward me at once by U. S. Express,

2 Butchers' Bow Saws.
½ doz. Mortise Locks, with Porcelain Knobs.
2 kegs 8d Nails,

and charge to my account.

Hoping that my order may receive your usual prompt attention, I am,

Yours respectfully,
HENRY M. BARROWS.

Letter of Credit.

LEXINGTON, KY., June 25, 18—.

Messrs. DODGE, MANOR & DEVOE,
New York City.

Gentlemen: Please allow the bearer of this, Mr. James Curtis, a credit for such goods as he may select, not exceeding One Thousand dollars, and if he does not pay for them, I will.

Please notify me in case he buys, of the amount, and when due, and if the account is not settled promptly according to agreement, write me at once.

Yours truly,
HIRAM DUNCAN.

Inclosing an Invoice.

125 Lake Street,
CHICAGO, Nov. 15, 18—.

SAMUEL D. PRENTICE, Esq.,
Vevay, Ind.

Dear Sir: Inclosed please find invoice of goods amounting to $218.60, shipped you this day by the B. & O. Express, as per your order of the 11th inst.

Hoping that the goods may prove satisfactory, and that we may be favored with further orders, we remain,

Yours truly,
SIBLEY, DUDLEY & CO.

Letter of Introduction.

168 Olive Street,
ST. LOUIS, June 4, 18—.

HENRY M. BLISS, Esq.,
Boston.

Dear Sir: This will introduce to you the bearer, Mr. William P. Hainline, of this city who visits Boston, for the purpose of engaging in the Hat, Cap and Fur trade.

He is a young man of energy and ability, and withal, a gentlemen in every sense.

Any assistance you may render him by way of introduction to your leading merchants or otherwise, in establishing his new enterprise will be duly appreciated by both himself and

Yours truly,
JAMES W. BROOKING.

Inclosing Remittance.

MILWAUKEE, WIS., Feb. 18, 18—.

Messrs. ARNOLD, CONSTABLE & Co.,
New York.

Gentlemen: The goods ordered of you on the 3d inst. have been received and are entirely satisfactory in both quality and price.

Enclosed please find New York exchange for $816.23, the amount of your bill.

Thanking you for your promptness in filling my order, I am,

Yours respectfully,
HENRY GOODFELLOW.

Inclosing Draft for Acceptance.

NEW YORK, Aug. 8, 18—.

Messrs. WEBSTER & DUNN,
Cairo, Ill.

Gentlemen: Inclosed we hand you Draft at 30 days for acceptance for $928.15, the amount of balance due from you to us to the present date.

We shall feel obliged by your accepting the same, and returning it by due course of mail.

Awaiting further favors, we are,

Very truly yours,
DODGE, HOLMES & CO.

Inclosing a Statement of Account.

CHICAGO, March 1, 18—.

MESSRS. CHASE & HOWARD,
South Bend, Ind.

Gentlemen: Inclosed please find a statement of your account for the past three months, which we believe you will find correct.

We shall feel obliged by your examining the same at your earliest convenience, and shall be happy to receive your check for the amount or instructions to draw on you in the ordinary course.

We are, gentlemen,
Yours truly,
J. V. FARWELL & CO.

A Dunning Letter.

DENVER, COL., June 30, 18—.

JAMES C. ADAMS, Esq.,
Great Bend, Kansas.

Dear Sir: Allow me to remind you that your account with me has been standing for several months unsettled.

I should not even now have called your attention to it, were it not that in a few days I must meet a heavy bill, and must rely in part on your account to furnish me the means.

I would, therefore, esteem it a great favor if you would let me have either the whole, or at least the greater part of your account in the course of a week or ten days.

Thanking you for past favors, I remain, Sir,
Yours truly,
A. R. MORGAN.

An Application for a Situation in Business.

Paste the Advertisement at the head of the sheet, and write as follows:

124 Fayette Street,
SYRACUSE, N. Y., Sept. 17, 18—

H. JOURNAL OFFICE,
City.

Dear Sir: In reply to the above advertisement I would respectfully offer my services.

I am 19 years of age, have a good education, and have had some experience in business, having assisted my father in his grocery store. I am not afraid of work, and never allow myself to be idle when there is work to be done. I can refer you as to my character, to Mr. J. H. Trout, president of the Gas Company, who has known me all my life.

In reference to salary, I leave that with you, but feel certain that I could earn five dollars per week for you.

Hoping to have the pleasure of an interview, I remain,
Respectfully,
HENRY OTIS.

Asking Permission to Refer to a Person.

SYRACUSE, N. Y., Sept. 17, 18—.

J. H. TROUT, Esq.,
Dear Sir:

I beg to inform you that in applying for a situation this morning, advertised in the *Journal*, I took the liberty of using your name as a reference.

The length of time I have been honored with your acquaintance, and the words of encouragement which you have given me heretofore, lead me to hope you would speak favorably in this instance, adding this to the numerous obligations already conferred upon

Your obedient servant,
HENRY OTIS.

Inquiring as to Business Prospects.

NEWARK, OHIO, June 15, 18

MR. J. D. SHAYLOR,
Denver, Col.

My Dear Sir: As I told you a year ago, I have been thinking seriously of disposing of my small business here and locating in some live and promising city out west, where I can grow up with the country as you are doing.

Will you have the kindness to sit down and write me at your convenience, full information in regard to the prospects of business, price of rents, cost of living, etc., in your city, and any other information, especially in regard to the hardware trade.

If you will thus kindly give me the facts on which I can base a calculation, and all is favorable, I will probably visit Denver this fall, and eventually become your neighbor.

Yours very truly,
J. C. GOODRICH.

Letter of Recommendation.

GRAND HAVEN, Mich., May 17, 18—.

TO WHOM IT MAY CONCERN:

Mr. Henry McPherson, who is now leaving our employ, has been in our office for the past two years, during which time he has faithfully attended to his duties, proving himself to be industrious and thoroughly reliable. He is a good penman, correct accountant, and acquainted with correspondence.

We shall at any time cheerfully respond to all applications we may have regarding his character and abilities, and wish him every success.

Yours truly,
WOOD & HILL.

Notice of Dissolution of a Partnership.

DAVENPORT, IA., Dec. 30, 18—.

JAS. L. BINGHAM & Co.,
Cedar Rapids, Ia.

Gentlemen: On the 1st of January next the partnership for the past ten years existing between Geo. H. Clark and Henry Webster, wholesale grocers in this City, will expire by limitation of the contract.

The firm takes this opportunity to thank its customers and friends for their generous patronage and support, whereby the business of the house grew to such large proportions.

After the first of January the business will be carried on at the old stand, Nos. 76 and 78 Main St., by Henry Webster and Cyrus D. Bradford, under the firm name of Webster & Bradford. We are, gentlemen,

Your obedient servants,
CLARK & WEBSTER.

Recommending a Successor in Business.

CINCINNATI, OHIO, Dec. 15, 18—.

TO THE PUBLIC:

It is with some feeling of regret that we announce our retirement from the business on the beginning of the new year. Our stock and premises will then be transferred to Messrs. Franklin and Warren, whom we cheerfully present to your notice, and feel it our duty to recommend them for a continuance of that liberal confidence and patronage which you have bestowed on us during the past twenty years.

Both these young gentlemen have been clerks of ours for several years past, and are in every way efficient and capable to continue the business.

We are
Respectfully,
JOHNSON & FOX.

. . LANGUAGE OF FLOWERS . .

Acacia—Concealed love.
Adonis Vernalis—Sorrowful remembrances.
Almond—Hope.
Aloe—Religious superstition.
Alyssum, Sweet—Worth beyond beauty.
Ambrosia—Love returned.
Apple Blossom—Preference.
Arbor Vitæ—Unchanging friendship.

Bachelor's button—Hope in love.
Balsam—Impatience.
Begonia—Deformity.
Bellflower—Gratitude.
Belvidere, Wild (Licorice)—I declare against you.
Blue Bell—I will be constant.
Box—Stoical indifference.
Briers—Envy.
Burdock—Touch me not.

Cactus—Thou leavest not.
Camellia—Pity.
Candytuft—Indifference.
Canterbury Bell—Gratitude.
Cape Jessamine—Ecstasy; transport.
Calla Lily—Feminine beauty.
Carnation (Yellow)—Disdain.
Cedar—I live for thee.
China Aster—I will see about it.
Chrysanthemum Rose—I love.
Cowslip—Pensiveness.
Cypress—Mourning.
Crocus—Cheerfulness.
Cypress and Marigold—Despair.

Daffodil—Chivalry.
Dahlia—Forever thine.
Daisy (Garden)—I partake your sentiment.
Daisy (Wild)—I will think of it.
Dandelion—Coquetry.
Dead Leaves—Sadness.
Dock—Patience.
Dodder—Meanness.
Dogwood—Am I indifferent to you?

Ebony—Hypocrisy.
Eglantine—I wound to heal.
Elder—Compassion.
Endive—Frugality.
Evening Primrose—Inconstancy.
Evergreen—Poverty.
Everlasting—Perpetual remembrance.

Fennel—Strength.
Filbert—Reconciliation.
Fir-tree—Elevation.
Flax—I feel your kindness.
Forget-me-not—True love; remembrance.
Fox-glove—Insincerity.
Furze—Anger.
Fuchsia—Taste.

Gentian—Intrinsic worth.
Geranium, Ivy—Your hand for the next dance.
Geranium, Nutmeg—I expect a meeting.
Geranium, Oak—Lady, deign to smile.
Geranium, Rose—Preference.
Geranium, Silver leaf—Recall.
Gilliflower—Lasting beauty.
Gladiolus—Ready; armed.
Golden Rod—Encouragement.
Gorse—Endearing affection.
Gass—Utility.

Harebell—Grief.
Hawthorn—Hope.
Hazel—Recollection.
Hartsease—Think of me.
Heliotrope—Devotion.
Henbane—Blemish.
Holly—Foresight.
Hollyhock—Fruitfulness.
Hollyhock, White—Female ambition.
Honeysuckle—Bond of Love.
Honeysuckle, Coral—The color of my fate.
Hyacinth—Jealousy.
Hyacinth, Blue—Constancy.
Hyacinth, Purple—Sorrow.
Hydrangea—Heartlessness.

Ice plant—Your looks freeze me.
Iris—Message.
Ivy—Friendship; matrimony.

Jessamine, Cape—Transient joy; ecstasy.
Jessamine, White—Amiability.
Jessamine, Yellow—Grace; elegance.
Jonquil—I desire a return of affection.
Juniper—Asylum; shelter.
Justicia—Perfection of loveliness.

Kalmia (Mountain Laurel)—Treachery.
Kannedia—Mental beauty.
Laburnum—Pensive beauty.
Lady's Slipper—Capricious beauty.
Larch—Boldness.
Larkspur—Fickleness.
Laurel—Glory.
Lavender—Distrust.
Lettuce—Cold-hearted.
Lilac—First emotion of love.
Lily—Purity; modesty.
Lily of the Valley—Return of happiness.
Lily, Day—Coquetry,
Lily, Water—Eloquence.
Lily, Yellow—Falsehood.
Locust—Affection beyond the grave.
Love in a Mist—You puzzle me.
Love Lies Bleeding—Hopeless, not heartless.
Lupine—Imagination.

Mallow—Sweetness; mildness.
Maple—Reserve.
Marigold—Cruelty.
Marjoram—Blushes.
Marvel of Peru (Four C'clocks)—Timidity.
Mint—Virtue.
Mignonette—Your qualities surpass your charms.
Mistletoe—I surmount all difficulties.
Mock Orange (Syringa)—Counterfeit.
Morning Glory—Coquetry.
Maiden's Hair—Discretion.
Magnolia, Grandiflora—Peerless and proud.
Magnolia, Swamp—Perseverance.
Moss—Maternal love.
Motherwort—Secret love.
Mourning Bride—Unfortunate attachment.
Mulberry, Black—I will not survive you.
Mulberry, White—Wisdom.
Mushroom—Suspicion.
Musk-plant—Weakness.
Myrtle—Love faithful in absence.

Narcissus—Egotism.
Nasturtium—Patriotism.
Nettle—Cruelty; slander.
Night Blooming Cereus—Transient beauty.
Nightshade—Bitter truth.

Oak—Hospitality.
Oats—Music.
Oleander—Beware.
Olive-branch—Peace.
Orange flower—Chastity.
Orchis—Beauty.
Osier—Frankness.
Osmunda—Dreams.

Pansy—Think of me.
Parsley—Entertainment; feasting.
Passion-flower—Religious fervor; susceptibility.
Pea, Sweet—Departure.
Peach Blossom—This heart is thine.
Peony—Anger.
Pennyroyal—Flee away.
Periwinkle—Sweet remembrances.
Petunia—Less proud than they deem thee.
Phlox—Our souls are united.
Pimpernel—Change.
Pink—Pure affection.
Pink, Double Red—Pure, ardent love.
Pink, Indian—Aversion.
Pink, Variegated—Refusal.
Pink, White—You are fair.
Pomegranate—Folly.
Poppy—Consolation.
Primrose—Inconstancy.

Rhododendron—Agitation.
Rose, Austrian—Thou art all that's lovely.
Rose, Bridal—Happy love.
Rose, Cabbage—Ambassador of love.
Rose, China—Grace.
Rose, Damask—Freshness.
Rose, Jacqueminot—Mellow love.
Rose, Maiden's Blush—If you *do* love me, you will find me out.
Rose, Moss—Superior merit.
Rose, Moss Rosebud—Confession of love.

Rose, Sweet-briar—Sympathy.
Rose, Tea—Always lovely.
Rose, White—I am worthy of you.
Rose, York and Lancaster—War.
Rose, Wild—Simplicity.
Rue—Disdain.

Saffron—Excess is dangerous.
Sardonia—Irony.
Sensitive Plant—Timidity.
Snap-Dragon—Presumption.
Snowball—Thoughts of Heaven.
Snowdrop—Consolation.
Sorrel—Wit ill-timed.
Spearment—Warm feelings.
Star of Bethlehem—Reconciliation.
Strawberry—Perfect excellence.
Sumac—Splendor.
Sunflower, Dwarf—Your devout admirer.
Sunflower, Tall—Pride.
Sweet William—Finesse.
Syringa—Memory.

Tansy—I declare against you.
Teazel—Misanthropy.
Thistle—Austerity.
Thorn Apple—Deceitful charms.
Touch-me-not—Impatience.
Trumpet-flower—Separation.
Tuberose—Dangerous pleasures.
Tulip—Declaration of love.
Tulip, Variegated—Beautiful eyes.
Tulip, Yellow—Hopeless love.

Venus' Flytrap—Have I caught you at last.
Venus' Looking-glass—Flattery.
Verbena—Sensibility.
Violet, Blue—Love.
Violet, White—Modesty.

Wallflower—Fidelity.
Weeping Willow—Forsaken.
Woodbine—Fraternal love.

Yew—Sorrow.

Zennæ—Absent friends.

MASTERPIECES OF ELOQUENCE

The following masterpieces of elegiac eloquence are unsurpassed in the repertory of the English classics, for lofty and noble sentiment, exquisite pathos, vivid imagery, tenderness of feeling, glowing power of description, brilliant command of language, and that immortal and seldom attained faculty of painting in the soul of the listener or reader a realistic picture whose sublimity of conception impresses the understanding with awe and admiration, and impels the mind to rise involuntarily for the time to an elevation out of and above the inconsequent contemplation of the common and sordid things of life.

AT HIS BROTHER'S GRAVE.

The following grand oration was delivered by Hon. Robert G. Ingersoll on the occasion of the funeral of his brother, Hon. Eben C. Ingersoll, in Washington, June 2:

"My friends, I am going to do that which the dead oft promised he would do for me. The loved and loving brother, husband, father, friend, died where manhood's morning almost touches noon, and while the shadows were still falling towards the west. He had not passed on life's highway the stone that marks the highest point, but being weary for a moment he lay down by the wayside, and using his burden for a pillow fell into that dreamless sleep that kisses down the eyelids. Still, while yet in love with life and raptured with the world, he passed to silence and pathetic dust. Yet, after all, it may be best, just in the happiest, sunniest hour of all the voyage, while eager winds are kissing every sail, to dash against the unseen rock and in an instant to hear the billows roar, 'A sunken ship;' for whether in mid sea or among the breakers of the farther shore, a wreck must mark at last the end of each and all, and every life, no matter if its every hour is rich with love, and every moment jeweled with a joy, will at its close become a tragedy as sad and deep and dark as can be woven of the warp and woof of mystery and death. This brave and tender man in every storm of life was oak and rock, but in the sunshine he was vine and flower. He was the friend of all heroic souls. He climbed the heights and left all superstitions far below, while on his forehead fell the golden dawning of a grander day. He loved the beautiful, and was with color, form and music touched to tears. He sided with the weak, and with a willing hand gave alms. With loyal heart, and with the purest hand he faithfully discharged all public trusts. He was a worshiper of liberty and a friend of the oppressed. A thousand times I have heard him quote the words, 'For Justice all place temple, and all seasons summer.' He believed that happiness was the only good, reason the only torch, justice the only worshiper, humanity the only religion, and love the priest. He added to the sum of human joy, and were everyone for whom he did some loving service to bring a blossom to his grave, he would sleep to-night beneath a wilderness of flowers. Life is a narrow vale between the cold and barren peaks of two eternities. We strive in vain to look beyond the heights. We cry aloud, and the only answer is the echo of our wailing cry. From the voiceless lips of the unreplying dead there comes no word, but the light of death. Hope sees a star, and listening love can hear the rustle of a wing. He who sleeps here when dying, mistaking the approach of death for the return of health, whispered with his latest breath, "I am better now." Let us believe, in spite of doubts and dogmas, and tears and fears, that these dear words are true of all the countless dead. And now, to you who have been chosen from among the many men he loved to do the last sad office for the dead, we give his sacred dust. Speeeh cannot contain our love. There was, there is, no gentler, stronger, manlier man."

AT THE GRAVE OF A CHILD.

Colonel Ingersoll upon one occasion was one of a little party of sympathizing friends who had gathered in a drizzling rain to assist the sorrowing friends of a young boy—a bright and stainless flower, cut off in the bloom of its beauty and virgin purity by the ruthless north winds from the Plutonian shades—in the last sad office of committing the poor clay to the bosom of its mother earth. Inspired by that true sympathy of the great heart of a great man, Colonel Ingersoll stepped to the side of the grave and spoke as follows:

"My friends, I know how vain it is to gild grief with words, and yet I wish to take from every grave its fear. Here in this world, where life and death are equal kings, all should be brave enough to meet what all the dead have met. The future has been filled with fear, stained and polluted by the heartless past. From the wondrous tree of life the buds and blossoms fall with ripened fruit, and in the common bed of earth the patriarchs and babes sleep side by side. Why should we fear that which will come to all that is? We cannot tell; we do not know which is the greater blessing—life or death. We cannot say that death is not a good; we do not know whether the grave is the end of this life or the door of another, or whether the night here is not somewhere else a dawn. Neither can we

tell which is the more fortunate, the child dying in its mother's arms, before its lips have learned to form a word, or he who journeys all the length of life's uneven road, taking the last slow steps painfully with staff and crutch. Every cradle asks us 'whence,' and every coffin 'whither?' The poor barbarian, weeping above his dead, can answer these questions as intelligently and satisfactorily as the robed priest of the most authentic creed. The tearful ignorance of the one is just as good as the learned and unmeaning words of the other. No man, standing where the horizon of life has touched a grave, has any right to prophesy a future filled with pain and tears. It may be that death gives all there is of worth to live. If those we press and strain against our hearts could never die, perhaps that love would wither from the earth. May be this common fate treads from out the paths between our hearts the weeds of selfishness and hate, and I had rather live and love where death is king, than have eternal life where love is not. Another life is naught, unless we know and love again the ones who love us here. They who stand with breaking hearts around this little grave need have no fear. The larger and the nobler faith in all that is and is to be, tells us that death, even at its worst, is only perfect rest. We know that through the common wants of life, the needs and duties of each hour, their grief will lessen day by day, until at last these graves will be to them a place of rest and peace, almost of joy. There is for them this consolation, the dead do not suffer. If they live again, their lives will surely be as good as ours. We have no fear; we are all the children of the same mother, and the same fate awaits us all. We, too, have our religion, and it is this: 'Help for the living; hope for the dead.'"

SUNDRY BRIEF ITEMS OF INTEREST.

In 1492 America was discovered.

In 1848 gold was found in California.

Invention of telescopes, 1590.

Elias Howe, Jr., invented sewing machines in 1846.

In 1839 envelopes came into use.

Steel pens first made in 1830.

The first watch was constructed in 1476.

First manufacture of sulphur matches in 1829.

Glass windows introduced into England in the eighth century,

First coaches introduced into England in 1569.

In 1545 needles of the modern style first came into use.

In 1527 Albert Durer first engraved on wood.

1559 saw knives introduced into England.

In the same year wheeled carriages were first used in France.

In 1588 the first newspaper appeared in England.

In 1629 the first printing press was brought to America.

The first newspaper advertisement appeared in 1652.

England sent the first steam engine to this continent in 1703.

The first steamboat in the United States ascended the Hudson in 1807.

Locomotive first used in the United States in 1830.

First horse railroad constructed in 1827.

In 1830 the first iron steamship was built.

Coal oil first used for illuminating purposes in 1836.

Looms introduced as a substitute for spinning wheels in 1776.

The velocity of a severe storm is 36 miles an hour; that of a hurricane, 80 miles an hour.

National ensign of the United States formally adopted by Congress in 1777.

A square acre is a trifle less than 209 feet each way.

Six hundred and forty acres make a square mile.

A "hand" (employed in measuring horses' height) is four inches.

A span is 10⅞ inches.

Six hundred pounds make a barrel of rice.

One hundred and ninety-six pounds make a barrel of flour.

Two hundred pounds make a barrel of pork.

Fifty-six pounds make a firkin of butter.

The number of languages is 2,750.

The average duration of human life is 31 years.

PHYSICIANS' DIGESTION TABLE.

SHOWING THE TIME REQUIRED FOR THE DIGESTION OF THE ORDINARY ARTICLES OF FOOD.

Soups.—Chicken, 3 hours; mutton, 3½ hours; oyster, 3½ hours; vegetable, 4 hours.

Fish.—Bass, broiled, 3 hours; codfish, boiled, 2 hours; oysters, raw, 3 hours; oysters, roasted, 3¼ hours; oysters, stewed, 3½ hours; salmon (fresh), boiled, 1¾ hours; trout, fried, 1½ hours.

Meats.—Beef, roasted, 3 hours; beefsteak, broiled, 3 hours; beef (corned), boiled, 4¼ hours; lamb, roast, 2½ hours; lamb, boiled, 3 hours; meat, hashed, 2½ hours; mutton, broiled, 3 hours; mutton, roast, 3¼ hours; pig's feet, soused, 1 hour; pork, roast, 5¼ hours; pork, boiled, 4½ hours; pork, fried, 4¼ hours; pork, broiled, 3¼ hours; sausage, fried, 4 hours; veal, broiled, 4 hours; veal, roast. 4½ hours.

Poultry and game.—Chicken, fricasseed, 3¾ hours; duck (tame), roasted, 4 hours; duck (wild), roasted, 4¾ hours; fowls (domestic), roasted or boiled, 4 hours; goose (wild), roasted, 2½ hours; goose (tame), roasted, 2¼ hours; turkey, boiled or roasted, 2½ hours; venison, broiled or roasted, 1½ hours.

Vegetables.—Asparagus, boiled, 2½ hours; beans (Lima), boiled, 2½ hours, beans (string), boiled, 3 hours; beans, baked (with pork), 4½ hours; beets (young), boiled, 3¾ hours; beets (old) boiled, 4 hours; cabbage, raw, 2 hours; cabbage, boiled, 4½ hours; cauliflower, boiled, 2½ hours; corn (green), boiled, 4 hours; onions, boiled, 3 hours; parsnips, boiled, 3 hours; potatoes, boiled or baked, 3½ hours; rice, boiled, 1 hour; spinach, boiled, 2½ hours; tomatoes, raw or stewed, 2½ hours; turnips, boiled, 3½ hours.

Bread, Eggs, Milk, etc.—Bread, corn, 3¼ hours; bread, wheat, 3½ hours; eggs, raw, 2 hours; cheese, 3½ hours; custard, 2¾ hours; eggs, soft-boiled, 3 hours; eggs, hard-boiled or fried, 3½ hours; gelatine, 2½ hours; tapioca, 2 hours.

THEMES FOR DEBATE.

Following are one hundred and fifty topics for debate. The more usual form in their presentation is that of a direct proposition or statement, rather than that of a question. The opponents then debate the "affirmative" and "negative" of the proposition. It is well to be very careful, in adopting a subject for a debate, to so state or explain it that misunderstandings may be mutually avoided, and quibbles on the meaning of words prevented.

THEMES FOR DEBATE.

Which is the better for this nation, high or low import tariffs?

Is assassination ever justifiable?

Was England justifiable in interfering between Egypt and the Soudan rebels?

Is the production of great works of literature favored by the conditions of modern civilized life?

Is it politic to place restrictions upon the immigration of the Chinese to the United States?

Will coal always constitute the main source of artificial heat?

Has the experiment of universal suffrage proven a success?

Was Grant or Lee the greater general?

Is an income-tax commendable?

Ought the national banking system to be abolished?

Should the government lease to stockgrowers any portion of the public domain?

Is it advisable longer to attempt to maintain both a gold and silver standard of coinage?

Which is the more important to the student, physical science or mathematics?

Is the study of current politics a duty?

Which was the more influential congressman, Blaine or Garfield?

Which gives rise to more objectionable idioms and localisms of language, New England or the West?

Was the purchase of Alaska by this government wise?

Which is the more important as a continent, Africa or South America?

Should the government interfere to stop the spread of contagious diseases among cattle?

Was Cæsar or Hannibal the more able general?

Is the study of ancient or modern history the more important to the student?

Should aliens be allowed to acquire property in this country?

Should aliens be allowed to own real estate in this country?

Do the benefits of the signal service justify its costs?

Should usury laws be abolished?

Should all laws for the collection of debt be abolished?

Is labor entitled to more remuneration than it receives?

Should the continuance of militia organizations by the several States be encouraged?

Is an untarnished reputation of more importance to a woman than to a man?

Does home life promote the growth of selfishness?

Are mineral veins aqueous or igneous in origin?

Is the theory of evolution tenable?

Was Rome justifiable in annihilating Carthage as a nation?

Which has left the more permanent impress upon mankind, Greece or Rome?

Which was the greater thinker, Emerson or Bacon?

Which is the more important as a branch of education, mineralogy or astronomy?

Is there any improvement in the quality of the literature of to-day over that of last century?

Should the "Spoils System" be continued in American politics?

Should the co-education of the sexes be encouraged?

Which should be the more encouraged, novelists or dramatists?

Will the African and Caucasian races ever be amalgamated in the United States?

Should the military or the interior department have charge over the Indians in the United States?

Which is of more benefit to his race, the inventor or the explorer?

Is history or philosophy the better exercise for the mind?

Can any effectual provision be made by the State against "hard times?"

Which is of the more benefit to society, journalism or the law?

Which was the greater general, Napoleon or Wellington?

Should the volume of greenback money be increased?

Should the volume of national bank ciculation be increased?

Should the railroads be under the direct control of the government?

Is the doctrine of "State rights" to be commeded?

Is the "Monroe doctrine" to be commended and upheld?

Is the pursuit of politics an honorable avocation?

Which is of the greater importance, the college or the university?

Does the study of physical science militate against religious belief?

Should "landlordism" in Ireland be supplanted by home rule?

Is life more desirable now than in ancient Rome?

Should men and women receive the same amount of wages for the same kind of work?

Is the prohibitory liquor law preferable to a system of high license?

Has any State a right to secede?

Should any limit be placed by the constitution of a State upon its ability to contract indebtedness?

Should the contract labor system in public prisons be forbidden?

Should there be a censor for the public press?

Should Arctic expeditions be encouraged?

Is it the duty of the State to encourage art and literature as much as science?

Is suicide cowardice?

Has our Government a right to disfranchise the polygamists of Utah?

Should capital punishment be abolished?

Should the law place a limit upon the hours of daily labor for workingmen?

Is "socialism" treason?

Should the education of the young be compulsory?

In a hundred years will republics be as numerous as monarchies?

Should book-keeping be taught in the public schools?

Should Latin be taught in the public schools?

Do our methods of government promote centralization?

Is life worth living?

Should Ireland and Scotland be independent nations?

Should internal revenue taxation be abolished?

Which is of greater benefit at the present day, books or newspapers?

Is honesty always the best policy?

Which has been of greater benefit to mankind, geology or chemistry?

Which could mankind dispense with at least inconvenience, wood or coal?

Which is the greater nation, Germany or France?

Which can support the greater population in proportion to area, our Northern or Southern States?

Would mankind be the loser if the earth should cease to produce gold and silver?

Is the occasional destruction of large numbers of people, by war and disaster, a benefit to the world?

Which could man best do without, steam or horse power?

Should women be given the right of suffrage in the United States?

Should cremation be substituted for burial?

Should the government establish a national system of telegraph?

Will the population of Chicago ever exceed that of New York?

Should the electoral college be continued?

Will the population of St. Louis ever exceed that of Chicago?

Should restrictions be placed upon the amount of property inheritable?

Which is more desirable as the chief business of a city—commerce or manufactures?

Which is more desirable as the chief business of a city—transportation by water or by rail?

Should the rate of taxation be graduated to a ratio with the amount of property taxed?

Will a time ever come when the population of the earth will be limited by the earth's capacity of food production?

Is it probable that any language will ever become universal?

Is it probable that any planet, except the earth, is inhabited?

Should the State prohibit the manufacture and sale of alcoholic liquors?

Should the government prohibit the manufacture and sale of alcoholic liquors?

Should the guillotine be substituted for the gallows?

Was Bryant or Longfellow the greater poet?

Should the jury system be continued?

Should the languages of alien nations be taught in the public schools?

Should a right to vote in any part of the United States depend upon a property qualification?

Can a horse trot faster in harness, or under saddle?

Should the pooling system among American railroads be abolished by law?

Is dancing, as usually conducted, compatible with a high standard of morality?

Should the grand jury system of making indictments be continued?

Which should be the more highly remunerated, skilled labor or the work of professional men?

Which is the more desirable as an occupation, medicine or law?

Should the formation of trade unions be encouraged?

Which has been the greater curse to man, war or drunkenness?

Which can man the more easily do without, electricity or petroleum?

Should the law interfere against the growth of class distinctions in society?

Which was the greater genius, Mohammed or Buddha?

Which was the more able leader, Pizarro or Cortez?

Which can to-day wield the greater influence, the orator or the writer?

Is genius hereditary?

Is Saxon blood deteriorating?

Which will predominate in five hundred years, the Saxon or Latin races?

Should American railroad companies be allowed to sell their bonds in other countries?

Should Sumner's civil rights bill be made constitutional by an amendment?

Does civilization promote the happiness of the world?

Should land subsidies be granted to railroads by the government?

Which is the stronger military power, England or the United States?

Would a rebellion in Russia be justifiable?

Should the theater be encouraged?

Which has the greater resources, Pennsylvania or Texas?

Is agriculture the noblest occupation?

Can democratic forms of government be made universal?

Is legal punishment for crime as severe as it should be?

Should the formation of monopolies be prevented by the State?

Has Spanish influence been helpful or harmful to Mexico as a people?

Which is of more importance, the primary or the high school?

Will the tide of emigration ever turn eastward instead of westward?

Should the art of war be taught more widely than at present in the United States?

Was slavery the cause of the American civil war?

Is life insurance a benefit?

How to Make 32 Kinds of Solder.—1. Plumbers' solder.—Lead 2 parts, tin 1 part. 2. Tinmen's solder.—Lead 1 part, tin 1 part. 3. Zinc solder.—Tin 1 part, lead 1 to parts. 4. Pewter solder. Lead 1 part, bismuth 1 to 2 parts. 5. Spelter soldier.—Equal parts copper and zinc. 6. Pewterers' soft solder.—Bismuth 2, lead 4, tin 3 parts. 7. Another.—Bismuth 1, lead 1, tin 2 parts. 8. Another pewter solder.—Tin 2 parts, lead 1 part. 9. Glaziers' solder.—Tin 3 parts, lead 1 part. 10. Solder for copper.—Copper 10 parts, zinc 9 parts. 11. Yellow solder for brass or copper.—Copper 32 lbs., zinc 29 lbs., tin 1 lb. 12. Brass solder.—Copper 61.25 parts, zinc 38.75 parts. 13. Brass solder, yellow and easily fusible.—Copper 45, zinc 55 parts. 14. Brass solder, white.—Copper 57.41 parts, tin 14.60 parts, zinc 27.99 parts. 15. Another solder for copper.—Tin 2 parts, lead 1 part. When the copper is thick heat it by a naked fire, if thin use a tinned copper tool. Use muriate or chloride of zinc as a flux. The same solder will do for iron, cast iron, or steel; if the pieces are thick, heat by a naked fire or immerse in the solder. 16. Black solder.—Copper 2, zinc 3, tin 2 parts. 17. Another.—Sheet brass 20 lbs., tin 6 lbs., zinc 1 lb. 18. Cold brazing without fire or lamp.—Fluoric acid 1 oz., oxy muriatic acid 1 oz., mix in a lead bottle. Put a chalk mark each side where you want to braze. This mixture will keep about 6 months in one bottle. 19. Cold soldering without fire or lamp.—Bismuth ¼ oz., quicksilver ¼ oz., block tin filings 1 oz., spirits salts 1 oz., all mixed together. 20. To solder iron to steel or either to brass.—Tin 3 parts, copper 39½ parts, zinc 7½ parts. When applied in a molten state it will firmly unite metals first named to each other. 21. Plumbers' solder.—Bismuth 1, lead 5, tin 3 parts, is a first-class composition. 22. White solder for raised Britannia ware.—Tin 100 lbs., hardening 8 lbs., antimony 8 lbs. 23. Hardening for Britannia.—(To be mixed separately from the other ingredients.) Copper 2 lbs., tin 1 lb. 24. Best soft solder for cast Britannia ware.—Tin 8 lbs., lead 5 lbs. 25. Bismuth solder.—Tin 1, lead 3, bismuth 3 parts. 26. Solder for brass that will stand hammering.—Brass 78.26 parts, zinc 17.41 parts, silver 4.33 parts, add a little chloride of potassium to your borax for a flux. 27. Solder for steel joints.—Silver 19 parts, copper 1 part, brass 2 parts. Melt all together. 28. Hard solder.—Copper 2 parts, zinc 1 part. Melt together. 29. Solder for brass.—Copper 3 parts, zinc 1 part, with borax. 30. Solder for copper.—Brass 6 parts, zinc 1 part, tin 1 part, melt all together well and pour out to cool. 31. Solder for platina.—Gold with borax. 32. Solder for iron.—The best solder for iron is good tough brass with a little borax.

N. B.—In soldering, the surfaces to be joined are made perfectly clean and smooth, and then covered with sal. ammoniac, resin or other flux, the solder is then applied, being melted on and smoothed over by a tinned soldering iron.

THE GREAT CIVIL WAR

...THE ENROLLMENT IN THE UNITED STATES ARMY...

The following table shows the total number of men furnished by each of the several States for the United States army during the Civil War of 1861-1865. The first column of figures shows the number furnished under the call of President Lincoln for 75,000 troops, issued April 15, 1861. The second column shows the aggregate number of white men furnished under all the calls:

STATES.	First Call.	All Calls.
Maine	771	71,715
New Hampshire	779	34,605
Vermont	782	35,246
Massachusetts	3,736	151,785
Rhode Island	3,147	23,711
Connecticut	2,402	57,270
New York	13,906	464,156
New Jersey	3,123	79,511
Pennsylvania	20,175	366,326
Delaware	775	13,651
Maryland	.....	49,731
West Virginia	900	32,003
District of Columbia	4,720	16,872
Ohio	12,557	317,133
Indiana	4,686	195,147
Illinois	4,820	258,217
Michigan	781	90,119
Wisconsin	817	96,118
Minnesota	930	25,034
Iowa	968	75,860
Missouri	10,501	108,773
Kentucky	.....	78,540
Kansas	650	20,097
Tennessee	.....	12,077
Arkansas	.....	.....
North Carolina	.....	.....
California	.....	7,451
Nevada	.....	216
Oregon	.....	617
Washington	.....	895
Nebraska	.....	1,279
Colorado	.....	1,762
Dakota	.....	181
New Mexico	1,510	2,395
TOTAL	93,326	2,688,523

The following exhibit gives the number of colored and drafted troops furnished to the Union army by the different States including the States which were in rebellion; besides which 92,576 colored troops were included (with the white soldiers) in the quotas of the several States. Many who enlisted from the South were credited to Northern States:

STATES AND TERRITORIES.	Colored Troops, 1861-65.	Number Drafted.	Bounties Paid by States.
NEW ENGLAND STATES.			
Connecticut	1,764	12,031	$ 6,887,554
Maine	104	27,324	7,837,644
Massachusetts	3,966	41,582	22,965,550
New Hampshire	125	10,806	9,636,313
Rhode Island	1,837	4,321	820,769
Vermont	120	7,743	4,528,775
TOTAL	7,916	103,807	52,676,605
MIDDLE STATES.			
New Jersey	1,185	32,325	23,868,967
New York	4,125	151,488	86,629,228
Pennsylvania	8,612	178,873	43,154,987
TOTAL	13,922	362,686	153,653,182
WESTERN STATES AND TERRITORIES.			
Colorado Territory	95	.....	.....
Illinois	1,811	32,085	17,296,205
Indiana	1,537	41,158	9,182,354
Iowa	440	7,548	1,615,171
Kansas	2,080	1,420	57,407
Michigan	1,387	22,022	9,664,855
Minnesota	104	10,796	2,000,464
Ohio	5,092	50,400	23,557,373
Wisconsin	165	38,395	5,855,356
TOTAL	12,711	203,924	69,229,185
BORDER STATES.			
Delaware	954	8,635	1,136,599
District of Columbia	3,269	14,338	134,010
Kentucky	23,703	29,421	692,577
Maryland	8,718	29,319	6,271,992
Missouri	8,344	21,519	1,282,149
West Virginia	196	3,180	864,737
TOTAL	45,184	106,412	10,382,064
SOUTHERN STATES.			
Alabama	4,969	.....	.....
Arkansas	5,526	.....	.....
Florida	1,044	.....	.....
Georgia	.....	.....	.....
Louisiana	3,486	.....	.....
Mississippi	17,869	.....	.....
North Carolina	5,035	.....	.....
South Carolina	5,462	.....	.....
Tennessee	20,133	.....	.....
Texas	47	.....	.....
Virginia	.....	.....	.....
TOTAL	63,571	.....	.....
GRAND TOTAL	173,079	776,829	$285,941,030
At large	733	.....	.....
Not accounted for	5,083	.....	.....
Officers	7,122	.....	.....
TOTAL	186,017	.....	.....

The various calls for men by the President were as follows, not including the militia brought into service during the different invasions of Lee's armies into Maryland and Pennsylvania:

1861	Call for three-months' men.....	75,000
1861	Call for three years.....	500,000
1862	Call for three years	300,000
1862	Call for nine months	300,000
1864	Call for three years, February	500,000
1864	Call for three years, March.....	200,000
1864	Call for three years, July	500,000
1864	Call for three years, December.	300,000
	TOTAL	2,675,000

The Provost-Marshal General in 1866 reported the following as the number of casualties in the volunteer and regular armies of the United States during the war:

Killed in battle, 61,362; died of wounds, 34,727; died of disease, 183,287; total died, 279,376; total deserted, 199,105.

Number of soldiers in the Confederate service who died of wounds or disease (partial statement), 133,821; deserted (partial statement), 104,428.

Number of United States troops captured during the war, 212,608; Confederate troops captured, 476,169.

Number of United States troops paroled on the field, 16,431; Confederate troops paroled on the field, 248,599.

Number of United States troops who died while prisoners, 29,725; Confederate troops who died while prisoners, 26,774.

A CORRECT AND CONCISE ACCOUNT OF THE VICTORIES AND DEFEATS AND IMPORTANT BATTLES.

NOVEMBER, 1860.

10th—Bill to equip and raise 10,000 volunteers introduced in South Carolina Legislature.

18th—Georgia Legislature voted $1,000,000 to arm the State.

20th-23d—Specie payment suspended by banks in Richmond, Baltimore, Washington, Philadelphia and Trenton, also generally through the South.

DECEMBER, 1860.

3d—A John Brown anniversary meeting in Boston broken up by riot.

10th—Louisiana Legislature voted $500,000 to arm the State.

24th—Election in Alabama—60,000 majority for secession.

27th—Troops ordered out in Charleston.

JANUARY, 1861.

5th—Steamer Star of the West sailed from New York with supplies and reinforcements for Fort Sumter, arrived off Charleston on 9th, was fired upon and driven back to sea; returned to New York on 12th with two shot holes in her hull.

7th—Senator Toombs, of Georgia, made a secession speech in U. S. Senate.

18th—Virginia Legislature appropriated $1,000,000 for the defense of the State.

21st—Jefferson Davis withdrew from U. S. Senate.

31st—U. S. mint at New Orleans seized by State authorities.

FEBRUARY, 1861.

9th—Jefferson Davis elected President of C. S. A.

9th—U. S. $25,000,000 loan bill signed by the President.

MARCH, 1861.

4th—Abraham Lincoln inaugurated President.

26th—Sam Houston, Governor of Texas, deposed for refusal to take an oath of allegiance to the C. S. A.

MAY, 1861.

2d—N. Y. 69th Regiment arrived in Washington.

5th—General Butler took possession of Relay House.

11th—Charleston blockade established.

17th—S. C. Congress authorized issue of $50,000,000 8% 20-year bonds.

29th—President Davis reached Richmond.

31st—Cavalry skirmish at Fairfax C. H., Va.

JUNE, 1861.

2d—Battle of Phillippe, Va.; Confederates routed.

10th—Battle of Big Bethel, Va.; Union forces repulsed.

11th—Col. Wallace routed Confederate force of 800 at Romney, Va.

14th—Confederates evacuated and burned Harper's Ferry, Va.

18th—Battle of Booneville, Mo.; Confederates routed by Gen. Lyon.

23d—Forty-eight B. & O. R. R. locomotives, valued at $400,000, destroyed by Confederates.

29th—General Council of War held at Washington.

JULY, 1861.

5th—President Lincoln called for 400,000 men and $400,000,000 to put down the rebellion.

5th—Battle of Carthage, Mo.

10th—Battle of Laurel Hill.

11th—Battle at Rich Mountain.

18th—Battle near Centreville, Va., called by the Confederates Battle of Bull's Run.

21st—Battle of Bull's Run, or (by the Confederates) Manassas. Conflict lasted ten hours, when panic seized the Union forces and they fled in disorder to Washington. The loss was:

Confederate—

630 killed; 2,235 wounded; 150 missing—3,015.

Union—481 killed; 1,011 wounded; 1,216 missing—2,698.

The number engaged were: Union 40,000 vs. Confederate 47,000, which were reinforced during the battle by 20,000 or 25,000.

AUGUST, 1861.

2d—Battle of Dug Spring, Mo.

4th—Battle of Athens, Mo.

7th—Hampton, Va., burned by Confederates.

8th—Battle of Lovettsville, Va.; Confederates routed.

10th—Battle of Wilson Creek, Mo. Union force, 5,200; Confederate force, 15,000. After six hours fighting, Confederates repulsed.

14th—Martial law declared in St. Louis.

15th—President Davis ordered all Northern men to leave the Confederacy within forty days.

20th—Skirmish of Hawk's Nest, Va.; 4,000 Confederates attacked 11th Ohio Regt.; driven back with 50 killed.

28th—Bombardment and Capture of Forts Clark and Hatteras. Confederate loss, 765 prisoners and 1,000 stand of arms.

29th—Lexington, Mo., attacked.

SEPTEMBER, 1861.

6th—Paducah, Ky., occupied by United States forces.

10th—Battle of Carnifex Ferry, Va.

18th—Banks at New Orleans suspended specie payment.

20th—Col. Mulligan surrendered at Lexington, Mo., with 2,500 men, to the Confederates.

24th—Romney, Va., stormed and captured by United States troops.

OCTOBER, 1861.

3d—Battle at Greenbrier, Va.
7th—Gen. W. T. Sherman relieved.
16th—Battle near Pilot Knob, Mo.
21st—Battle of Ball's Bluff.
21st—Battle of Wild Cat, Ky.
28th—Battle of Cromwell, Ky.

NOVEMBER, 1861.

1st—Winfield Scott, Commander of the United States army, retired, and Maj.-Gen. Geo. B. McClellan was appointed in his place.
7th—Great naval fight off Hilton Head.
8th—Battle of Belmont, Mo.
11th—Battle of Piketon, Ky.
19th—English packet Trent boarded by Capt. Wilkes, and Mason and Slidell captured. On the 24th inst. they were placed in Fort Warren, Boston Harbor, from which they were released January 1, 1862, on a demand of the British government.

DECEMBER, 1861.

2d—Naval engagement at Newport News.
9th—Congress passed bill authorizing exchange of prisoners.
10th—Shelling of Free Stone Point by Union gunboats.
20th—Battle of Drainsville, Mo.
30th—Banks of New York, Philadelphia, Albany and Boston suspended specie payment.

JANUARY, 1862.

2d—Battle on Point Royal Island, S. C.
10th—Battle of Middle Creek, Ky.
19th—Battle of Mill Spring, Ky. Confederate loss, 192 killed, 68 wounded, 89 prisoners; Union loss, 39 killed, 207 wounded.

FEBRUARY, 1862.

6th—Fort Henry captured by Union soldiers.
7th and 8th—Battle of Roanoke Island. Union loss, 50 killed, 222 wounded; Confederate loss, 13 killed, 39 wounded, 2,527 prisoners.
13th—Battle of Fort Donelson, which was kept up incessantly till the 16th, when the fort was surrendered to the Union forces. Union loss, 446 killed, 1,735 wounded, 150 prisoners; Confederate loss, 237 killed, 1,007 wounded, 13,300 prisoners.
21st—Battle near Fort Craig, N. M. Union loss, 162 killed, 40 wounded.

MARCH, 1862.

6th to 8th—Battle of Pea Ridge, Arkansas. Union loss, 203 killed, 972 wounded, 176 missing; Confederate loss, 1,100 killed, 2,400 wounded, 1,600 prisoners.
9th—First encounter of iron clad vessels, "Monitor" and "Merrimac," in which the Merrimac was defeated.
10th—Manassas, Va., evacuated by rebels.
14th—Battle of Newbern, N. C.
23d—Battle of Winchester, Va.
28th—Battle of Valles Ranch, N. M.
31st—B. & O. R. R. reopened, after having been closed nearly a year.

APRIL, 1862.

6th and 7th—Battle of Pittsburg Landing or "Shiloh." Union loss: 1,735 killed, 7,822 wounded, 4,044 missing. Over 3,000 Confederates were buried on the field.
7th—Island No. 10, Mississippi River, surrendered after a twenty-three days' bombardment. Confederate loss: 125 guns, 13 steamers, 10,000 small arms, 2,000 horses, 1,000 wagons, and over 6,000 prisoners.
11th—Pulaski surrendered after a thirty-hour bombardment.
16th—Battle of Lee's Mills.
19th—Battle of Camden, Nor Carolina.
26th—Commodore Farragut demanded the surrender of New Orleans.

MAY, 1862.

1st—New Orleans captured by Union forces.
5th—Battle of Williamsburg, Virginia.
8th—Battle of West Point, Virginia.
10th—Surrender of Norfolk, Virginia.
10th—General Butler captured $800,000 in gold at New Orleans.
23d—Battle of Front Royal, Virginia.
25th—Battle of Winchester, Virginia.
27th—Battle of Corinth.
31st—Battle of Fair Oaks, Virginia.
31st—Battle of Seven Pines, Virginia.

JUNE, 1862.

4th—Battle of Tranter's Creek, North Carolina.
6th—Great gun-boat fight before Memphis, at the close of which Memphis surrendered unconditionally.
8th—Battle of Cross Keys, Virginia.
9th—Battle of Port Republic, Virginia.
26th—Battle of Mechanicsville, Virginia.
27th—Bombardment of Vicksburg, Mississippi.
30th—Battle of White Oak Swamp.

JULY, 1862.

1st—Battle of Malvern Hill, the last of the seven days' fight before Richmond. Total Union loss was 15,224, of which 1,565 were killed.
1st—President Lincoln called for 600,000 men.
5th—Bombardment of Vicksburg.
17th—Postage stamps made a legal tender.
20th—Morgan's Guerillas overtaken and scattered.

AUGUST, 1862.

4th—President Lincoln ordered 300,000 men to be drafted.
5th—Battle of Baton Rouge, Louisiana.
5th—Attack on Fort Donelson, Tennessee.
9th—Battle of Cedar Mountain.
21st—Five Confederate regiments crossed the Rappahannock and almost walked into the masked batteries of General Sigel, which opened fire on them with grape and canister, mowing them down by scores, 700 being killed and 2,000 captured.
28th—Battle near Centreville, Mo.
28th—Union forces evacuated Fredricksburg, Va.
29th—Battle of Groveton, near Bull's Run, Va.
30th—Groveton battle renewed. Gen Pope defeated and what is known as the "Second Battle of Bull's Run" ended.
30th—Battle near Richmond, Ky. Union forces defeated: 200 killed, 700 wounded and 2 000 prisoners taken.

SEPTEMBER, 1862.

1st—Battle near Chantilly, Va.
1st—Battle at Briton's Lane, Tenn.
12th—Harper's Ferry invested by Confederates.
14th—Battle of South Mountain, Md. Union loss: 2,325.
15th—Harper's Ferry surrendered; 11,500 Federals surrendered.
17th—Battle of Antietam. Each army numbered about 100,000; Union loss, 12,469; Confederate loss, 25,542.
17th—Munfordsville, Ky., surrendered to the Confederates; 4,600 Unionists captured.
20th—Battle of Iuka, Miss.
22d—Emancipation proclamation issued.

OCTOBER, 1862.

3d and 4th—Battle of Corinth, Miss. Union loss, 2,359; Confederate loss, 9,363.
8th and 9th—Battle of Perryville, Mo.
15th—Heavy fighting between Lexington and Richmond, Ky.
18th—Morgan, the raider, dashed into Lexington and captured 125 prisoners.
22d—Battle of Maysville, Ark.

NOVEMBER, 1862.

1st—Artillery fight at Philmont, Va.
3d—Reconnoissance at the base of BlueRidge Mountains—Confederates literally driven into the river and drowned by scores.
4th—Galveston, Texas, surrendered.
16th—Capt. Dahlgren, with 54 men, dashed into Fredricksburg, Va., and routed 500 Confederates.
21st—Gen. Sumner demanded the surrender of Fredericksburg, Va.
27th—Battle near Frankfort, Va.
28th—Battle of Cane Hill, Ark.

DECEMBER, 1862.

4th—Winchester, Va., captured by Union soldiers.
5th—Battle near Coffeeville, Miss.
7th—Battle of Prarie Grove, Ark.
11th—Fredricksburg, Va., shelled by Federalists.
12th—Fredericksburg captured.
13th—Battle of Fredericksburg, Va.
29th—General Sherman repulsed by the Confederates.
31st—Battle of Murfreesboro.

JANUARY, 1863.

1st—Battle of Galveston.
1st—Battle of Murfreesboro renewed, with fearful results to the Federals. Union loss was 1,500 killed, 6,000 wounded and 4,000 prisoners taken.
7th—Battle of Springfield, Mo.

MARCH, 1863.

21st—Battle of Cottage Grove, Tenn.
28th—Battle of Somerville, Ky.

MAY, 1863.

2d—Battles of Fort Gibson, Miss., and Chancellorsville, Virginia.
12th—Battle of Raymond, Miss.
16th—Battle of Champion Hill, Miss.
17th—Battle of Big Black River, Miss.
19th—Repulse of the first Vicksburg assault.

JUNE, 1863.

15th—Battle of Winchester, Va.
25th—Chambersburg, Pa., captured by Confederates.
30th—Battle of Hanover Junction, Va.

JULY, 1863.

2d—Battle of Gettysburg.
4th—General Grant captured Vicksburg.
9th—Surrender of Port Hudson.
10th—Repulse of the assult on Fort Wagner.
13th—Commencement of the New York draft riots.

AUGUST, 1863.

20th—Lawrence, Kansas, was burned.

OCTOBER, 1863.

17th—President Lincoln called 300,000 more men.

NOVEMBER, 1863.

15th—Battle of Campbell's Station.
24th—Battles of Lookout Mountain and Missionary Ridge were fought at Chattanooga, Tenn.

MARCH, 1864.

17th—General Grant assumed command of all the armies of the United States.

MAY, 1864.

4th—The Army of the Potomac crossed the Rapidan, and encamped in the "Wilderness."
5th and 6th—Battles of the Wilderness, Virginia.
6th—General Sherman began his Atlanta campaign
9th—Battle of Spottsylvania, Virginia.
14th—Battle of Resaca, Georgia.
25th—Battle of New Hope Church Station, Georgia.
26th—The Confederates were repulsed in an attack on City Point, Virginia.

JUNE, 1864.

1st—Battle of Cold Harbor, Virginia.
3d—A battle was fought near Cold Harbor, Virginia.
16th—Federals were defeated in an attack on Petersburg, Virginia.
19th—The investment of Petersburg, Va., was begun.
19th—The Alabama was sunk off Cherbourg, France, by the Kearsarge.
21st and 22d—The Federals were repulsed in attacks upon the Weldon railroad, Virginia.
27th—Battle of Kenesaw Mountain.
28th—The Confederates moved on Washington by way of the Shenandoah Valley, Virginia.

JULY, 1864.

9th—Battle of Monocacy River, Maryland.
20th—Battle of Peach Tree Creek, Georgia.
22d—Battle of Decatur, Georgia.
30th—Another unsuccessful assault was made by the Federals upon Petersburg, Virginia.

AUGUST, 1864.

6th—Fort Gaines, in Mobile Bay, surrendered to Admiral Farragut.
21st—The Weldon railroad captured.
31st—The battle of Jonesborough.

SEPTEMBER, 1864.

2d—The Federals entered Atlanta.
19th—The battle of Winchester, Virginia.
22d—The battle of Fisher's Creek, Virginia.
30th—Battle at Peeble's Farm, Virginia.

OCTOBER, 1864.

2d—Battle of Holston River, Virginia.
6th—Battle of Allatoona Pass, Georgia.
19th—Battle of Cedar Creek, Virginia.
27th—The Federals were repulsed at Hatcher's Run, Virginia.

NOVEMBER, 1864.

16th—General Sherman began his march to the sea.

DECEMBER, 1864.

13th—Fort McAllister was captured by the Federals.
15th—The battle of Nashville, Tennessee.
25th—The Federals were repulsed in an attack upon Fort Fisher, North Carolina.

JANUARY, 1865.

15th—Fort Fisher, N. C., was captured by the Federals.

FEBRUARY, 1865.

5th—The Federals were repulsed at Hatcher's Run, Virginia.

MARCH, 1865.

16th—Battle of Averysborough, North Carolina.
18th—Battle of Bentonville, North Carolina.

25th—Fort Steadman, near Petersburg, was captured by the Confederates, and recaptured by the Federals.
31st—The battle of Five Forks, Virginia.

APRIL, 1865.

2d—Richmond was evacuated by the Confederates.
6th—Battle of Farmville, Virginia.
9th—Lee surrendered with 26,115 men.
9th—General Lee with his army surrendered to General Grant, at Appomattox Court House, Virginia.
13th—Mobile surrendered to a combined army and naval attack.
14th—The flag General Anderson had lowered at Fort Sumter was restored to its position.
14th—President Lincoln was assassinated at Washington. He was shot in the back of the head at Ford's Theatre by Wilkes Booth, and died next morning.
15th—Andrew Johnson, Vice-President, took the oath of office as President.
25th—Wilkes Booth shot in a barn in Virginia and died in twenty-four hours.
26th—General Johnson surrendered to General Sherman in North Carolina.

MAY, 1865.

5th—Galveston, Texas, surrendered to the Federals.
10th—Jeff. Davis captured in Georgia.
13th—A skirmish took place near Brazos, in Eastern Texas.
26th—The Confederates in Texas, under General Kirby Smith, surrendered.
The armies of the East and West were disbanded and returned home, after a review at Washington.

JUNE, 1865.

6th—An order was issued for the release of all prisoners of war in the depots of the north.

JULY, 1865.

7th—Mrs. Surratt, Harold, Payne and Azertoth hanged at Washington for conspiracy in the murder of Lincoln.

DECEMBER, 1865.

18th—Secretary Seward officially declared slavery abolished.

COSMETIQUES.

COMPLEXION WASH.—Put in a vial one drachm of benzoin gum in powder, one drachm nutmeg oil, six drops of orange-blossom tea, or apple-blossoms put in half pint of rain-water and boiled down to one teaspoonful and strained, one pint of sherry wine. Bathe the face morning and night; will remove all flesh worms and freckles, and give a beautiful complexion. Or, put one ounce of powdered gum of benzoin in a pint of whisky; to use, put in water in wash-bowl till it is milky, allowing it to dry without wiping. This is perfectly harmless.

TO CLEAR A TANNED SKIN.—Wash with a solution of carbonate of soda and a little lemon juice; then with Fuller's earth-water, or the juice of unripe grapes.

OIL TO MAKE THE HAIR CURL.—Olive oil, one pound; oil of organum, one drachm; oil rosemary, one and one-half drachms.

WRINKLES IN THE SKIN.—White wax, one ounce; strained honey, two ounces; juice of lily bulbs, two ounces. The foregoing melted and stirred together will remove wrinkles.

PEARL WATER FOR THE FACE.—Put half a pound best Windsor soap scraped fine into half a gallon of boiling water; stir it well until it cools, add a pint of spirits of wine and half an ounce of oil of rosemary; stir well. This is a good cosmetique, and will remove freckles.

PEARL DENTIFRICE.—Prepared chalk, one-half pound; powdered myrrh, two ounces; camphor, two drachms; orris-root powdered, two ounces. Moisten the camphor with alcohol and mix all well together.

WASH FOR A BLOTCHED FACE.—Rose water, three ounces; sulphate of zinc, one drachm; mix. Wet the face with it, gently dry it and then touch it over with cold cream, which also gently dry off.

FACE POWDER.—Take of wheat starch, one pound; powdered orris-root, three ounces; oil of lemon, thirty drops; oil of bergamot, oil of cloves, each fifteen drops. Rub thoroughly together.

BANDOLINE—To one quart of rose water add an ounce and a half of gum tragacanth; let it stand forty-eight hours, frequently straining it, then strain through a coarse linen cloth; let it stand two days, and again strain; add to it a drachm of oil of roses; used by ladies dressing their hair, to make it lie in any position.

THE ART OF BEAUTY IN DRESS

It is far easier to find fault with existing customs than to devise and put in practice other and better ones.

Ladies do not like to appear singular, and make themselves conspicuous by wearing such articles of dress as are laughed at, possibly, certainly not worn by any other persons in the city or county in which she may belong. And so the matter goes on. Manufacturers, dry goods dealers and milliners and dressmakers carry the day with a high hand. Yet there is always some choice, and as, thanks to our civilized habits, a full-length mirror is obtainable by most ladies, given the resolution to make the most and best of themselves, the greater number of women can so study the art of dressing well as to produce some excellent results.

It will hardly do to copy the old masters of painting in the arrangement of drapery, at least anyways closely, for no matter how well the voluminous folds may look painted, they certainly would be very much in the way in real life, and impede any free action of the muscles somewhat, while the length of sweeping gowns certainly looks more in place on painted canvas than it can do on an ordinary walking dress. Ladies have realized this fact, however, and the short walking-skirt, at once pretty and convenient, has been the result.

In some places the common sense shoe can be found, and this permits the muscles of the foot, if not the freest, yet fair play. One great mistake in the dressing of the feet is in getting the covering too short. It will throw back the toe joints, and a bunion is only too frequently the result. If the soles of the shoes are too thin, the feet become chilled, and disease ensues. Yet in repeated instances they have been known to draw the feet, and made them exceedingly tender and sore. A light cork sole sewed to a knitted worsted slipper will give a foot covering, equally light and far less injurious in its results.

There are ladies who wholly ignore woolen hosiery, preferring lisle thread, cotton or silk. Yet, in winter time, particularly for children, woolen stockings are almost a necessity, particularly if woolen is worn over the rest of

the body. There are some people who cannot abide the feeling of woolen garments next the skin, and they are obliged to get their warmth of clothing in other than their undergarments. Heavy cutside garments are not quite so graceful as those of softer and lighter material, but if they must be worn they will bear a plainer cut than such clothes as are naturally clinging and adapt themselves to the figure.

Solid and plain colors have a greater richness than mixed shades. If combined tints are used, they should only be such as harmonize well, and in the full-length figure give a good personal effect. Probably more ladies err in getting good general effects than in any other one particular. They have various garments, pretty enough, possibly, in themselves, yet which do not harmonize well together, either in material, color or cut, or possibly with their particular style of figure and shade of hair and complexion. For example, the skirt will have one style of trimming, the waist another, the bonnet may look exceedingly well with one suit and be quite out of keeping with another. A short, dumpy person will wear flounces, a tall, slim one stripes, while some red-haired woman will fancy an exquisite shade of pink, while green or blue would have been much more becoming.

Black generally makes people look smaller and white larger. A very pale person can bear a certain amount of bright red. Any delicate complexion looks well with soft ruchings or laces at neck and wrist. Lace is so expensive that it cannot be so generally worn as it might be with excellent effect. Probably no prettier head-covering has ever been designed than the veils worn by the Spanish women. Certainly they are infinitely more graceful than a modern poke bonnet.

Dress goods cut up into little bits and sewed together into fantastical shapes called trimmings are apt, if too freely used, to give an air of fussiness to the dress, and be withal a source of endless annoyance in catching dust and dirt. The former ideas of a border or hem to finish has become the greater part of the garment.

Nothing is gained in grace by making any outside garment skin-tight, while much is lost in comfort by so doing. A sleeve, for instance, to be serviceable and look well, should be loose and adapt itself somewhat to the curve of the arm. Likewise a dress waist looks far better a little loose, as well as being more healthful and wearing better.

Large, stout persons can add to their appearence much by wearing all outside skirts buttoned on to fitted undergarments below the hips several inches, for gathers about the waist only add to their stoutness of look and are uncomfortable to carry about. A yoked petticoat answers the purpose very well in lieu of the buttoned skirts.

A wrapper for a tall, slim person can have a Spanish flounce, while a slashed skirt with kilt inserts is more becoming to a short figure. Large folds are always more graceful than small pleats and puckers. One very great fault of our dressmaking lies in not allowing the goods to fall in large and natural folds, but in bunching and pleating it in folding, and pressing the goods down into fantastic and inartistic shapes. Added to this, paniers and padding, bustles and hoops, until an ordinary woman is forced to appear like a stuffed figure instead of a living human being.

Every woman can modify, and arrange, and simplify, and that without becoming either ultra or conspicuous. It will take time. That cannot be helped, yet possibly the saving in comfort and expense may fully compensate for the few hours spent in studying her own dress with the mirror before her and with the determination to make the very best and most of herself.

ALL ABOUT KITCHEN WORK.

A lady who for a time was compelled to do all of her own kitchen work says: "If every iron, pot, pan, kettle or any utensil used in the cooking of food, be washed as soon as emptied, and while still hot, half the labor will be saved." It is a simple habit to acquire, and the washing of pots and kettles by this means loses some of its distasteful aspects. No lady seriously objects to washing and wiping the crystal and silver, but to tackle the black, greasy, and formidable-looking ironware of the kitchen take a good deal of sturdy brawn and muscle as well as common-sense.

If the range be wiped carefully with brown paper, after cooking greasy food, it can be kept bright with little difficulty.

Stoves and ranges should be kept free from soot in all compartments. A clogged hot-air passage will prevent any oven from baking well.

When the draught is imperfect the defect frequently arises from the chimney being to low. To remedy the evil the chimney should be build up, or a chimney-pot added.

It is an excellent plan for the mistress to acquaint herself with the practical workings of her range, unless her servants are exceptionally good, for many hindrances to well-cooked food arises from some misunderstanding of, or imperfection in, this article.

A clean, tidy kitchen can only be secured by having a place for everything and everything in its place, and by frequent scourings of the room and utensils.

A hand-towel and basin are needed in every kitchen for the use of the cook or house-worker.

Unless dish-towels are washed, scalded and thoroughly dried daily they become musty and unfit for use, as also the dish-cloth.

Cinders make a very hot fire—one particularly good for ironing days.

Milk keeps from souring longer in a shallow pan than in a milk pitcher. Deep pans make an equal amount of cream.

Hash smoothly plastered down will sour more readily than if left in broken masses in the chopping bowl, each mass being well exposed to the air.

Sauce, plain, and for immediate use, should not be put into a jar and covered when warm, else it will change and ferment very quickly. It will keep some days with care in the putting up. Let it stand until perfectly cold, then put into a stone jar.

To scatter the Philadelphia brick over the scouring board on to the floor, to leave the soap in the bottom of the scrubbing pail, the sappolio in the basin of water, and to spatter the black lead or stove polish on the floor are wasteful, slatternly habits.

A clock in the kitchen is both useful and necessary.

INTERESTING INDUSTRIAL ITEMS.

Auburn, Maine, has the biggest shoe works in the world.

Tempering copper, a lost art, is again accomplished.

Pittsburg has the biggest ax factory ; makes 3,000 per day.

This country has 1,000 canning factories and leads the world.

Over 1,000 cattle were recently shipped to England on one boat.

Mexican railroads have mahogany ties and stations of fine marble.

HOW TO CALCULATE.

PRACTICAL RULES, SHORT METHODS, AND PROBLEMS USED IN BUSINESS COMPUTATIONS.

RAPIDITY and accuracy in making estimates and in figuring out the result of business transactions is of the greatest necessity to the man of business. A miscalculation may involve the loss of hundreds or thousands of dollars, in many cases, while a slow and tedious calculation involves loss of time and the advantage which should have been seized at the moment. It is proposed in the following pages to give a few brief methods and practical rules for performing calculations which occur in every-day transactions among men, presuming that a fair knowledge of the ordinary rules of arithmetic has previously been attained.

ADDITION.

To be able to add up long columns of figures rapidly and correctly is of great value to the merchant. This requires not only a knowledge of addition, but in order to have a correct result, one that can be relied upon, it requires concentration of the mind. Never allow other thoughts to be flitting through the mind, or any outside matter to disturb or draw it away from the figures, until the result is obtained. Write the tens to be carried each time in a smaller figure underneath the units, so that afterwards any column can be added over again without repeating the entire operation. By the practice of addition the eye and mind soon become accustomed to act rapidly, and this is the art of addition. Grouping figures together is a valuable aid in rapid addition, as we group letters into words in reading.

862 }
538 }
674 }
843 }
2917

Thus, in the above example, we do not say 3 and 4 are 7 and 8 are 15 and 2 are 17, but speak the sum of the couplet, thus 7 and 10 are 17, and in the second column, 12 and 9 are 21. This method of grouping the figures soon becomes easy and reduces the labor of addition about one-half, while those somewhat expert may group three or more figures, still more reducing the time and labor, and sometimes two or more columns may be added at once, by ready reckoners.

Another method is to group into tens when it can be conveniently done, and still another method in adding up long columns is to add from the bottom to the top, and whenever the numbers make even 10, 20, 30, 40 or 50, write with pencil a small figure opposite, 1, 2, 3, 4 or 5, and then proceed to add as units. The sum of these figures thus set out will be the number of tens to be carried to the next column.

6^{2} 2 8
3 5^{2} 4^{1}
2 8 4
9 6 2
7^{2} 1 8^{2}
8 3^{2} 5
5 2 7
1^{1} 3 2^{1}
5 8 8
5 0 2 8

SHORT METHODS OF MULTIPLICATION.

For certain classes of examples in multiplication short methods may be employed and the labor of calculation reduced, but of course for the great bulk of multiplications no practical abbreviation remains. A person having much multiplying to do should learn the table up to twenty, which can be done without much labor.

To multiply any number by 10, 100, or 1000, simply annex one, two, or three ciphers, as the case may be. If it is desired to multiply by 20, 300, 5000, or a number greater than one with any number of ciphers annexed, multiply first by the number and then annex as many ciphers as the multiplier contains.

TABLE.

5	cents	equal	1-20	of a	dollar.	20	cents	equal	1-5	of a dollar.
10	"	"	1-10	"	"	25	"	"	¼	" "
12½	"	"	⅛	"	"	33⅓	"	"	⅓	" "
16⅔	"	"	1-6	"	"	50	"	"	½	" "

Articles of merchandise are often bought and sold by the pound, yard, or gallon, and whenever the price is an equal part of a dollar, as seen in the above table, the whole cost may be easily found by adding two ciphers to the number of pounds or yards and dividing by the equivalent in the table.

Example. What cost 18 dozen eggs at 16⅔c per dozen?

6)1800
$3.00

Example. What cost 10 pounds butter at 25c per pound?

4)1000
$2.50

Or, if the pounds are equal parts of one hundred and the price is not, then the same result may be obtained by dividing the price by the equivalent of the quantity as seen in the table; thus, in the above case, if the price were 10c and the number of pounds 25, it would be worked just the same.

Example. Find the cost of 50 yards of gingham at 14c a yard.

2)1400
$7.00

When the price is one dollar and twenty-five cents, fifty cents, or any number found in the table, the result may be quickly found by finding the price for the extra cents, as in the above examples, and then adding this to the number of pounds or yards and calling the result dollars.

Example. Find the cost of 20 bushels potatoes at $1.12½ per bushel.

8)2000
250
$22.50

If the price is $2 or $3 instead of $1, then the number of bushels must first be multiplied by 2 or 3, as the case may be.

Example. Find the cost of 6 hats at $4.33⅓ apiece.

3)600
4
24.00
2.00
$26

When 125 or 250 are multipliers add three ciphers and divide by 8 and 4 respectively.

To multiply a number consisting of two figures by 11, write the sum of the two figures between them.

Example. Multiply 53 by 11. Ans. 583.

If the sum of the two numbers exceeds 10 then the units only must be placed between and the tens figure carried and added to the next figure to the left.

Example. Multiply 87 by 11. Ans. 957.

FRACTIONS.

Fractional parts of a cent should never be despised. They often make fortunes, and the counting of all the fractions may constitute the difference between the rich and the poor man. The business man readily understands the value of the fractional part of a bushel, yard, pound, or cent, and calculates them very sharply, for in them lies perhaps his entire profit.

TO REDUCE A FRACTION TO ITS SIMPLEST FORM.

Divide both the numerator and denominator by any number that will leave no remainder and repeat the operation until no number will divide them both.

Example. The simplest form of $\frac{36}{45}$ is found by dividing by $9 = \frac{4}{5}$.

To reduce a whole number and a fraction, as $4\frac{1}{2}$, to fractional form, multiply the whole number by the denominator, add the numerator and write the result over the denominator. Thus, $4 \times 2 = 8 + 1 = 9$ placed over 2 is $\frac{9}{2}$.

TO ADD FRACTIONS.

Reduce the fractions to like denominators, add their numerators and write the denominator under the result.

Example. Add $\frac{2}{3}$ to $\frac{3}{4}$.

$\frac{2}{3} = \frac{8}{12}$, $\frac{2}{4} = \frac{9}{12}$, $\frac{8}{12} + \frac{9}{12} = \frac{17}{12} = 1\frac{5}{12}$ Ans.

TO SUBTRACT FRACTIONS.

Reduce the fractions to like denominators, subtract the numerators and write the denominators under the result.

Example. Find the difference between $\frac{4}{5}$ and $\frac{3}{4}$.

$\frac{4}{5} = \frac{16}{20}$, $\frac{3}{4} = \frac{15}{20}$, $\frac{16}{20} - \frac{15}{20} = \frac{1}{20}$. Ans.

TO MULTIPLY FRACTIONS.

Multiply the numerators together for a new numerator and the denominators together for a new denominator.

Example. Multiply $\frac{7}{8}$ by $\frac{5}{6}$.

$\frac{7}{8} \times \frac{5}{6} = \frac{35}{48}$. Ans.

TO DIVIDE FRACTIONS.

Multiply the dividend by the divisor inverted.

Example. Divide $\frac{7}{8}$ by $\frac{5}{6}$.

$\frac{7}{8} \times \frac{6}{5} = \frac{42}{40}$. Reduced to simple form by dividing by 2 is $\frac{21}{20} = 1\frac{1}{20}$. Ans.

TO MULTIPLY MIXED NUMBERS.

When two numbers are to be multiplied, one of which contains a fraction, first multiply the whole numbers together, then multiply the fraction by the other whole number, add the two results together for the correct answer.

Example. What cost $5\frac{1}{3}$ yards at 18c a yard?

$$\begin{array}{r} 18\text{c} \\ 5\frac{1}{3} \\ \hline 18 \times 5 = 90 \\ 18 \times \frac{1}{3} = 6 \\ \hline 96\text{c} \end{array}$$

When both numbers contain a fraction,

First, multiply the whole numbers together,

Second, multiply the lower whole number by the upper fraction;

Third, multiply the upper whole number by the lower fraction;

Fourth, multiply the fractions together;

Fifth, add all the results for the correct answer.

Example. What cost $12\frac{2}{3}$ pounds of butter at $18\frac{3}{4}$c per pound?

$$\begin{array}{r} 18\frac{3}{4} \\ 12\frac{2}{3} \\ \hline 18 \times 12 = 216 \\ 12 \times \frac{3}{4} = 9 \\ 18 \times \frac{2}{3} = 12 \\ \frac{3}{4} \times \frac{2}{3} = \frac{6}{12} = \frac{1}{2} \\ \hline \$2.37\frac{1}{2} \end{array}$$

Common fractions may often be changed to decimals very readily, and the calculations thereby made much easier.

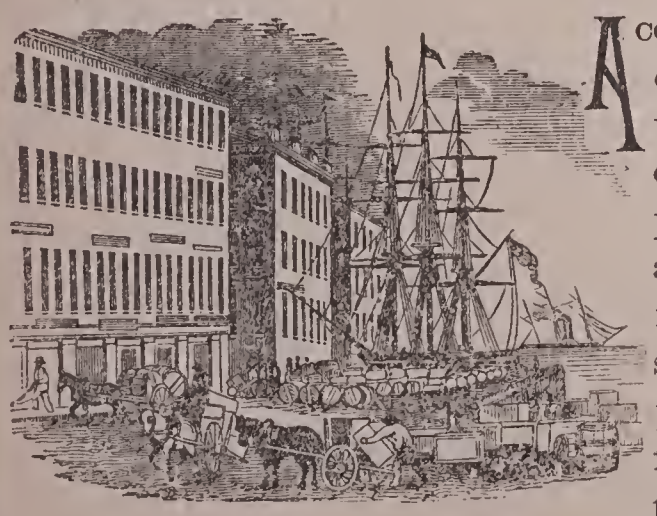
TO CHANGE COMMON FRACTIONS TO DECIMALS.

Annex one or more ciphers to the numerator and divide by the denominator.

Example. Change $\frac{3}{4}$ to a decimal. Ans. .75.

We add two ciphers to the 3, making it 300, and divide by 4, which gives us .75. In the same way $\frac{1}{2} = .5$, or $\frac{3}{4} = .75$, and so on. When a quantity is in dollars and fractions of a dollar, the fractions should always be thus reduced to cents and mills.

COMMISSION.



A COMMISSION merchant is one who sells merchandise or property for another. The former may ship his stock, produce, or fruit direct to the commission merchant in the large city, who sells it at the highest market price, or holds it, according to the instructions of the shipper, for sale on his account. The country merchant ships butter, eggs, cheese, poultry, and other produce from the farm, for sale in this way. The city merchant finds in his stock of boots and shoes, dry goods or groceries, goods which are unsalable for the season, and not desiring to "carry them over," he sends them to the commission merchant to be disposed of at the most favorable price. Hence may be found in the large cities, Grain Commission Merchants, who deal exclusively in wheat, corn, oats, etc.; Stock Commission Merchants, who sell cattle, sheep, and hogs; Produce Commission Merchants, who handle only produce and fruit, and so on.

The goods shipped to a commission merchant are said to be consigned, and are called a consignment.

The shipper is called the consignor and the person to whom shipped is called the consignee.

Commission merchants charge a fee for their services in selling the goods, either at a certain price per car load, as in stock, or at a certain per cent on the sales, as in most articles of merchandise.

Rates of commission may depend upon the volume and kind of business transacted, but the commission merchants generally have a uniform price for buying and selling the various articles of merchandise.

After the property has been sold, a statement is rendered by the consignee, showing the particulars as to the sale of the consignment, the charges, commission, and net proceeds due the consignor; this statement is called an *Account Sales*. The charges other than commission, embrace, cooperage, storage, insurance, measuring, etc.

FORM OF AN ACCOUNT SALES.

Sale No. 546.
Folio 327.

Cleveland, July 17, 18 .

ACCOUNT SALES OF *250 bu. Potatoes.*

SOLD FOR ACC'T OF *Edward E. Morgan, Mendota, Ill.*

BY G. W. MASON & CO.,

COMMISSION MERCHANTS,

Received *July 13th.* **Rendered by** *Jasper.* **157 SOUTH WATER STREET.**

		SOLD F. D. Baxter,				
		250 bu. Early Rose Potatoes,	*$1.40*		*$350*	
		CHARGES.				
		Freight and Cartage Paid.		*16 48*		
		Storage.		*2 60*		
		Insurance.				
		Commission and Guaranty, *7%*		*24 50*	*43*	*58*
			Net Proceeds.		*$306*	*42*
		E. & O. E.				

HOW TO FIND THE COMMISSION.

Multiply the amount of the sales by the rate per cent and the product will be the commission.

Example. A commission merchant sold a consignment for $600 on 4 per cent commission. What was his commission?

Sales,	$600
Rate per cent,	04
Commission,	$24.00

Example. A commission merchant sold a consignment of apples for $124, and charged 3½ per cent commission. He paid freight, $8.40, and drayage, $2.75. What were the net proceeds?

Sales,	$124
Rate per cent,	03½
124 × 3 =	$372
124 × ½ =	62
Commission,	$4.34
Freight,	8.40
Drayage,	2.75
Total charges,	$15.49

Sales,	$124.00
Charges,	15.49
Net proceeds,	$108.51

INSURANCE.

A CONTRACT between two parties in which, for a certain fee, one agrees to indemnify the other against loss by any species of casualty is called insurance. Companies organized for the purpose of engaging in insurance usually confine themselves to a particular class of risks. Fire Insurance, Life Insurance, Accident Insurance and Marine Insurance are names for different kinds of risks.

The written contract between the company and the insured is called a policy, which recites the particulars in a special case, specifying the premium or other consideration, the amount insured, the risks, etc., for which indemnity is stipulated. The sum paid for insurance is called the premium, and is usually reckoned at a certain rate per cent on the size of the risk assumed.

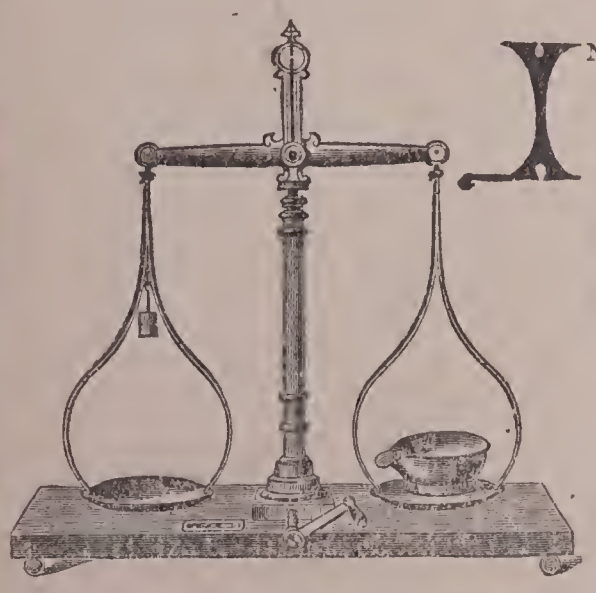
In order to find the premium on a fire policy, multiply the amount insured by the rate, thus:

Example. A merchant insured his stock of goods for $3,250 at 1¼ per cent. What was paid for premium?

	$ 3250
	01¼
Premium at 1 per cent	$32.50
" " ¼ "	8.125
" " 1¼ "	40.625

To find the premium on a life policy, find the premium, from the tables, on a policy of $1000, and multiply this by the number of thousands in the policy.

PROFIT AND LOSS.



IN THE calculations of the business man, the reckoning of gains and losses form no unimportant part. An article having cost a certain amount, at what price must it be sold to make a just profit, taking into consideration freight or express charges, rent of store, bad debts, clerk hire and other expenses; what is the gain per cent on the different classes of goods sold; which yields the best income, and what interest on the capital invested, do I make? are questions which the prudent, careful and successful merchant is continually asking himself. It is not too much to say that the failure of a large proportion of the farmers and merchants who do fail, is owing to a harem-scarem, reckless method of doing business, disregarding all rules of arithmetic or book-keeping, and in their ignorance supposing that they are getting rich, until the crisis comes, and all at once the true condition of affairs dawns on them and the sheriff closes them out. Their neighbors say, "bad management," but the thoughtful business man, speaking more definitely, says it was paying eight per cent interest and only making seven and a half per cent net profit on goods sold.

Having given the cost of an article and the per cent. to be gained or lost, to find the gain or loss,

Multiply the cost by the rate per cent and the product will be the gain or loss.

Example. A farmer bought a cow for $36 and sold her at 20 per cent profit. What does he gain?

Cost,	$36
Gain per cent,	.20
Gain,	$7.20

Example. The cost of an invoice of goods is $68.60 and freight $4.30 additional. What is the gain by selling at 33⅓ per cent profit?

Goods,	$68.60
Freight,	4.30
33⅓ per cent =	⅓)72.90
Gain,	$24.30

Having thus found the gain, the selling price is easily found by adding the gain, or subtracting the loss from the cost.

Given, the cost and the selling price, in order to find the rate per cent of gain or loss.

Take the difference between the cost and selling price, and divide this by the cost price, the quotient will be the rate per cent of gain or loss.

Example. A suit of clothes cost $16 and sold for $20.

Selling price, $20
Cost, 16

16) 4.00(25 per cent.
3.2

80

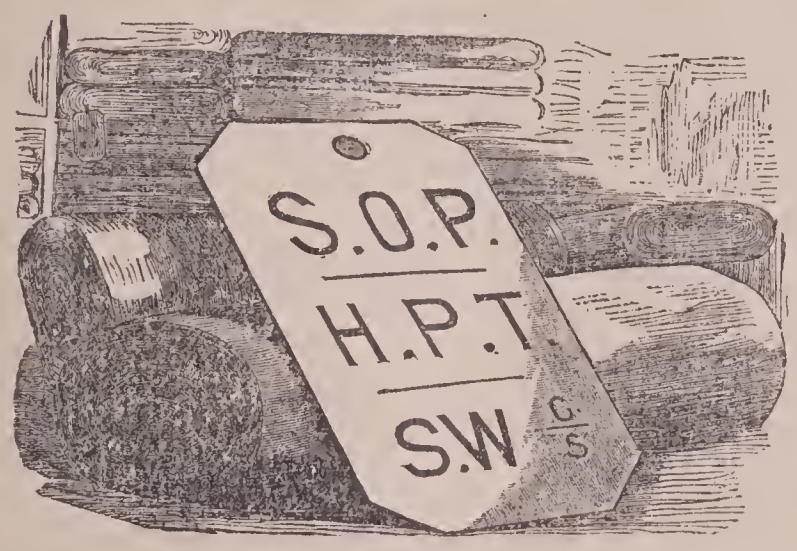
Example. Bought corn at 50c per bushel and sold it at 46c per bushel. What was the per cent of loss?

Cost, 50c
Selling price, 46

50) 4.00(8 per cent. loss.
4.00

The gain or loss is *always* reckoned on the cost, never on the selling price, hence the reason for always dividing by the cost, and thus using it as a basis of calculation or measurement.

MARKING GOODS.



COMPETITION in trade, the peculiarities of customers, cost of rents, clerk hire, advertising, freight or express charges, and interest on the capital invested, are factors which the merchant must consider in deciding at what profit he may mark his goods. Certain classes of goods which are salable only during a certain brief period in the year, should be sold at a higher profit, to compensate for carrying over, any portion of the stock which remains unsold, while on other articles an ordinary rate of profit is made. In order to secure custom, merchants sometimes resort to the method of selling staple articles, such as calico or sugar, at almost cost, and making up this loss on other articles concerning the cost of which the public are not so well informed. Large trade is often attracted in this way, and fortunes have by it been made.

In marking goods most merchants prefer to use a system of characters or letters understood only by themselves and their salesmen, to represent the cost price of goods, and in some cases the selling price also, the object being to conceal from the customer, the amount of profit made.

This is easily done by adopting any word or phrase having ten letters, no two alike, to represent the nine digits and cipher. Such words and phrases as the following may be used:

GAS FIXTURE.	FISH TACKLE.	BROWN SUGAR.
BLACK HORSE.	CASH PROFIT.	NOW BE SHARP.
MISFORTUNE.	SO FRIENDLY.	ELUCIDATOR.
IMPORTANCE.	GAINFUL JOB.	OF INDUSTRY.

Each figure is given a letter to represent it, and when it is required to mark a box or package the letter is used instead of the figure. Thus,

C A S H P R O F I T
1 2 3 4 5 6 7 8 9 0

In marking an article, the cost of which is $3.75 and the selling price is $4.50, by substituting the letters we have S O P—H P T, and as the cost and selling price are usually written in the form of a fraction with the cost price above, we have $\frac{\text{S O P}}{\text{H P T}}$. An extra letter called a repeater is often used to avoid the repetition of a letter which might disclose the private mark, thus in writing $1.22, instead of using the key letters, which would be C A A, we substitute for the last letter, some extra letter, as W, and make it read C A W. Fractions may be written thus; $426\frac{3}{4}$, H A R$\frac{\text{S}}{\text{H}}$.

Instead of letters, merchants sometimes adopt a system of characters, such as follows:

1 2 3 4 5 6 7 8 9 0 Repeater.

A great many articles are bought by merchants by the dozen, such as hats and caps, boots and shoes, and notions, and while pricing such goods in the wholesale house, it becomes important to know readily what profit will be yielded by selling the articles singly in

the buyer's market at a certain price, or what the articles should retail for to make a profit of 20 per cent.

Divide the cost of the articles by the dozen by 10, which is done by removing the decimal point one place to the left.

Thus, when straw hats are wholesaled at $13.50 per dozen, the buyer knows at once that each hat must be sold for $1.35 in order to yield him a gross profit of 20 per cent, and he can then decide whether it would be profitable to buy.

Using 20 per cent as a basis, a larger or smaller gain may be readily found by adding to, or subtracting from, the selling price. The cost of an article is 100 per cent, and if 20 per cent gain is made, the selling price is represented by 120 per cent. Suppose the merchant desires to make a profit of 30 per cent. Removing the decimal point one place to the left, he has the selling price of the article at 20 per cent profit, and as he desires 10 per cent more profit, which is $\frac{1}{12}$ of 120, this is found by adding $\frac{1}{12}$ to the selling price of the article. Hence the following table:

To make 20 p. ct.	remove the point	one place	to the left.			
" 80	"	"	"	and add	$\frac{1}{2}$	itself.
" 60	"	"	"	"	$\frac{1}{3}$	"
" 50	"	"	"	"	$\frac{1}{4}$	"
" 44	"	"	"	"	$\frac{1}{5}$	"
" 40	"	"	"	"	$\frac{1}{6}$	"
" 37	"	"	"	"	$\frac{1}{7}$	"
" 35	"	"	"	"	$\frac{1}{8}$	"
" $33\frac{1}{3}$	"	"	"	"	$\frac{1}{9}$	"
To make 32 p. ct.	remove the point	and add	$\frac{1}{10}$	itself.		
" 30	"	"	"	"	$\frac{1}{12}$	"
" 28	"	"	"	"	$\frac{1}{15}$	"
" 26	"	"	"	"	$\frac{1}{20}$	"
" 25	"	"	"	"	$\frac{1}{24}$	"
" $12\frac{1}{2}$	"	"	"	subtract	$\frac{1}{16}$	"
" $16\frac{2}{3}$	"	"	"	"	$\frac{1}{30}$	"
" $18\frac{3}{4}$	"	"	"	"	$\frac{1}{96}$	"

Example. If I buy one dozen shirts for $26, what shall I retail them at to make 50 per cent? Ans. $3.25.

Remove the point one place to the left, making $2.60, then add $\frac{1}{4}$, or 65c for extra gain, and the result will be $3.25.

Merchants, in marking goods, usually make the per cent of profit some even part of a dollar, for convenience, and when articles are not bought by the dozen, but singly, the following table for finding the selling price will be useful:

To make 10 per cent profit,	add	$\frac{1}{10}$	to the cost.			
" $12\frac{1}{2}$	"	"	$\frac{1}{8}$	"	"	
" $16\frac{2}{3}$	"	"	$\frac{1}{6}$	"	"	
" 20	"	"	$\frac{1}{5}$	"	"	
" 25	"	"	$\frac{1}{4}$	"	"	
" $33\frac{1}{3}$	"	"	$\frac{1}{3}$	"	"	
" 40	"	"	$\frac{2}{5}$	"	"	
" 50	"	"	$\frac{1}{2}$	"	"	
" $66\frac{2}{3}$	"	"	$\frac{2}{3}$	"	"	
" 75	"	"	$\frac{3}{4}$	"	"	
" $87\frac{1}{2}$	"	"	$\frac{7}{8}$	"	"	

Example. A book cost the book-seller $1.08, at what price must it be marked to make a profit of $33\frac{1}{3}$ per cent? Ans. $1.44. One-third of $1.08 is 36c, which, added to the cost, gives the selling price.

TRADE DISCOUNTS.

MERCHANTS, in certain lines of business, manufacturers, and publishers of books, have a printed price list of their goods and wares. For all the fluctuations in market value, it would be very inconvenient, if not impossible, to issue a new catalogue of prices, and hence the market price is reached by giving discounts from the "list price." Suppose the regular discount on an article, "to the trade," that is to other dealers, is 40 per cent, and it is desired to give a greater reduction, this is done by an extra discount, and we would then have 40 and 10 off, and if, on account of buying a large quantity, it is desirable to give still a better reduction, we would have 40, and 10, and 5 off, as in the following bill:

New York, August 10, 18 .

Messrs. Geo. Brown & Co.,

BOUGHT OF THE NATIONAL SCHOOL FURNITURE CO.,

Manufacturers and Dealers in

SCHOOL FURNITURE AND SCHOOL SUPPLIES.

20	*Double School Desks, A,*	*$9*	*180*			
	40 off,		*72*			
			108			
	10 off,		*10*	*80*		
			97	*20*		
	5 off,		*4*	*86*	*$92*	*34*

To persons ignorant of the principles of discounting, in the foregoing bill the discounts would appear to be equal to a single discount of 55 per cent, but such is not the case, as they are in reality less than 50 per cent, seen by comparing the final result with the original price. The reason of this is that all the discounts are not computed on the list price, but only on the sum remaining after the previous discount has been deducted.

EXAMPLES SHOWING THE DIFFERENCE IN DISCOUNTS.

List price,	$250	List price,	$250
40 off	100	70 off	175
	150	Net,	$ 75
20 off	30		
	120		
10 off	12		
Net,	$108		
	75		
	$ 33	Difference between the methods.	

In marking goods, as seen in the previous chapter, the selling price is usually placed at a certain per cent above cost, and in case a discount is given, it is important to know *what* discount may be allowed. Thus if an article is marked 40 per cent above cost and a discount of 25 per cent allowed from the marking price, the gain would not still be 15 per cent, as might be supposed, but only 5 per cent, and if 30 per cent discount were allowed, instead of leaving a profit of 10 per cent, the merchant would be actually *losing* 2 per cent. Thus may losses arise when profits are supposed to be made, through lack of knowledge of discounting.

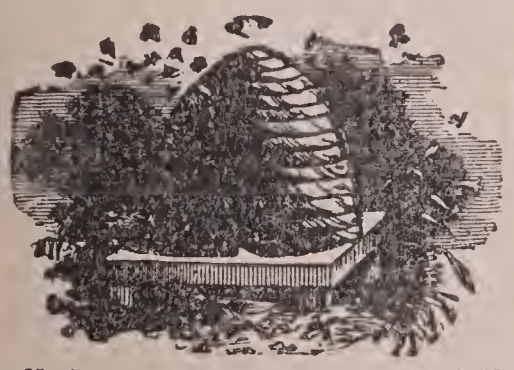
The reason for this seeming deception is, that discounts are reckoned on a greater sum than the cost. Thus, if the cost is $1.00, and a profit of 40 per cent is marked, the selling price is $1.40. Now 30 per cent of $1.40 is 42c, which deducted leaves the selling price at 98c, which is 2c less than the actual cost.

Example. What is the actual profit to a merchant who marked an article of hardware which cost him $10 at 50 per cent profit and in order to effect a sale threw off 30 per cent?

Cost price,	$10.00
50 per cent profit,	5.00
Marking price,	$15.00
30 per cent discount,	4.50
Selling price,	$10.50
Cost,	10.00
Net gain,	.50

Discounts should never be given at random, but only after careful calculation, as the merchant may be thus very easily deceived and led into a loss while supposing he is making a good profit.

INTEREST.



ONE of the most important calculations met with in business is that of reckoning interest. Time was in the dark ages, when all interest was usury, and illegal, for the reason, as said, that money could not grow or increase, and that a man would "only borrow under the impulse of hard necessity." But later, men perceived that with money they could buy that which would increase; and as commerce revived, instead of borrowing under necessity, money was borrowed and interest paid for the benefits which accrue from the use of capital. In our own time usury is the taking of interest higher than the rate allowed by law, and a few of the states have even abolished usury laws, and allow any rate of interest to be charged. There is no doubt but that eventually all distinctions of legal and illegal interest will disappear, and the laws of supply and demand will regulate the price paid for money, as it now regulates the price of commodities, or labor, the equivalents of money.

The legal rate of interest is the rate established by law for all contracts in which no rate of interest is mentioned.

Rate of interest will depend upon
- 1 Risk.
  - 1 The personal character of borrower.
  - 2 The nature of the business.
  - 3 The character of the government.
- 2 Convenience of investment.
  - 1 Facility of Transfer.
  - 2 Permanency of the loans.
  - 3 Punctuality in payment.
- 3 Profits of use.
- 4 Supply and demand.

The sum for which interest is paid is called the principal, and the number of cents paid for the use of every dollar for one year is called the rate.

Unfortunately no uniformity exists in calculating the time for which interest is charged. The United States government, in the case of bonds, estimates 365 days to the year, and while some bankers have adopted this in calculating interest, others estimate 360 days to the year, and 30 days to the month, therefore as one-twelfth of a year, and a day as one-thirtieth of a month. This is most commonly used, and calculations made are usually based on 360 days to the year.

A very large proportion of the calculations in interest are in days, usually 30, 60 or 90 days. Banks do not like to handle paper for a longer time than 90 days, and merchants sell goods on 30, 60 or 90 days' credit. In most of the states of the United States, and in Canada, the legal rate is 6 per cent. The following rule for finding the interest at 6 per cent when the time is in days, will be found excellent:

SIXTY DAYS METHOD OF INTEREST.

Remove the point two places farther to the left in the principal, this will give the interest for 60 days at 6 per cent.

Example. What is the interest on $250 for 60 days at 6 per cent? Ans. $2.50.

To find the interest for 30 days, take one-half, and for 90 days add one-half to the interest for 60 days.

Example. What is the interest on $600 for 30 days at 6 per cent? Ans. $3.00. For 90 days? Ans. $9.00.

Notes given usually have 3 days of grace, so that the time would be 33, 63 or 93 days, in which case, first find the interest for the time without grace, and then add $\frac{1}{20}$ of the 60 days' interest, or $\frac{1}{10}$ of 30 days' interest.

Example. What is the interest on a note for $240, 93 days, 6 per cent?

Interest for	60	days	$2.40
"	" 30	"	1.20
"	" 3	"	.12
"	" 93	"	$3.72

To find interest for	10	days	take	$\frac{1}{6}$	of the	interest	for	60	days.
"	"	"	12	"	"	$\frac{1}{5}$	"	"	"	"	
"	"	"	20	"	"	$\frac{1}{3}$	"	"	"	"	
"	"	"	40	"	subtract	$\frac{1}{3}$	from	"	"	"	
"	"	"	45	"	"	$\frac{1}{4}$	"	"	"	"	
"	"	"	75	"	add	$\frac{1}{4}$	to the	"	"	"	
"	"	"	120	"	double	the		"	"	"	

Using 60 days as a basis, the interest may thus be found for any number of days by adding to or subtracting from, the interest for 60 days.

TO FIND THE INTEREST AT ANY RATE.

First find the interest at 6 per cent for the given time, and if the rate is greater or less than 6 per cent, add to, or subtract from, the interest at 6 per cent, as follows:

To find the interest at	3 %	take	$\frac{1}{2}$	the interest at	6%
" " "	4 %	subtract	$\frac{1}{3}$	"	"
" " "	4½%	"	$\frac{1}{4}$	"	"
" " "	5 %	"	$\frac{1}{6}$	"	"
" " "	7 %	add	$\frac{1}{6}$	"	"
" " "	7½%	"	$\frac{1}{4}$	"	"
" " "	8 %	"	$\frac{1}{3}$	"	"
" " "	9 %	"	$\frac{1}{2}$	"	"
" " "	10 %	"	$\frac{2}{3}$	"	"

The foregoing method will be found of great value in all cases where the time is short, and a little practice will lead to its adoption by all who desire a quick and simple method of casting interest.

TO FIND THE INTEREST AT ANY RATE FOR ANY TIME.

If the time is in months and days, reduce it to days, or if the time is in years and months only, reduce to months. Place the principal, time, and rate on one side of a line, and if the time is in months, place 12, or if in days, place 360, on the opposite side of the line. Shorten the operation by canceling, multiply together the remaining numbers, and point off two places for cents.

Example. Find the interest on $560 at 9 per cent for 5 months 12 days.

	14	
	~~$560~~	5 mo. 12 da. = 162 da.
~~360~~	162	
~~40~~	.09	162 × 14 = $22.68 Ans.

Example. Find the interest on a note for $288, drawing 7 per cent interest for 1 year 8 months.

	24	
	~~$288~~	1 yr. 8 mo. = 20 mo.
~~12~~	20	
	.07	24 × 20 = 480 × .07 = $33.60 Ans.

In some cases very little canceling can be done, but even if none is done, this method is then as short as any other, for working the same problem.

HOW INTEREST ACCUMULATES.

If one dollar be invested and the interest added to the principal, *annually*, at the rates named, we shall have the following result as the accumulation of one hundred years:

One Dollar, 100 years, at	1	℔ cent	.....	$2.75
" "	2	"	.....	7.25
" "	2½	"	.....	11.75
" "	3	"	.....	19.25
" "	3½	"	.....	31.25
" "	4	"	.....	50.50
" "	4½	"	.....	81.50
" "	5	"	.....	131.50
" "	6	"	.....	340.00
" "	7	"	.....	868.00
" "	8	"	.....	2,203.00
" "	9	"	.....	5,543.00
" "	10	"	.....	13,809.00
" "	12	"	.....	34,675.00
" "	15	"	.....	1,174,405.00
" "	18	"	.....	15,145,007.00
" "	24	"	.....	2,551,799,404.00

BANK DISCOUNT.

TO FIND the value of a debt or note before it is due, the interest on it for the unexpired time must be deducted, and because it is deducted this interest is called discount. Discount differs in no way from simple interest, and is calculated by the rules previously given for reckoning interest.

In Bank Discount three *days of grace* are included, and with some banks the day when the note is discounted is added, making four extra days. The reason of this is that the note may have been discounted and the funds advanced early in the morning, and paid late on the last day of grace, so that the bank loses the use of the money while the borrower receives its use, for really four extra days.

The discount deducted from the face of the note, or debt, leaves the *Proceeds*. In case a note bearing interest is discounted, the interest to the time of maturity must first be computed and added to the note and then the discount taken on this amount.

The amount due at maturity is the *face* of the note, among bankers.

Example. What is the discount at 6 per cent and proceeds of a note for $1500 due 60 days hence?

Discount for 60 days,	$15.00
" " 3 "	.75
" " 63 "	15.75
Face of note,	$1500
Discount,	15.75
Proceeds,	$1484.25

COMPOUND INTEREST.

WHEN the interest on a debt is payable at stated intervals, as yearly, half yearly, or quarterly, and is not paid when due, it may, by agreement between the parties, be added to, and become a part of, the debt or principal and draw interest with it. This interest on interest and principal combined is called compound interest.

In casting up the compound interest on a debt or obligation, the interest must first be found for the year, half year, or quarter, as the case may be, and added to the principal and then interest for the next interval of a year, half year, or quarter computed on this amount and added, and so on.

Example. Find the amount due at compound interest of a debt of $600, in 3 years, at 8 per cent, compounded annually.

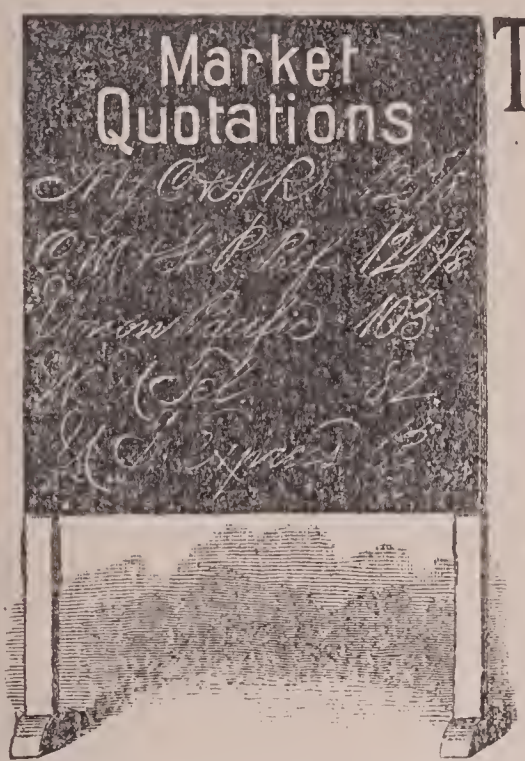
Principal,	$600
	.08
Int. for 1st year,	48
	600
Amount at end of 1st year,	648
	.08
Int. for 2d year,	51.84
	648
Amount at end of 2d year,	699.84
	.08
Int. for 3d year,	55.9872
	699.84
Amount due at end of 3d year,	$755.82+Ans.

Reckonings for a long period of time or with frequent compoundings, entail considerable labor, and it is well, therefore, to have near at hand, a table which can be easily referred to, and thus save the labor and liability to error of a long calculation.

TABLE SHOWING THE AMOUNT OF $1 AT COMPOUND INTEREST FOR ANY NUMBER OF YEARS, FROM 1 YEAR TO 50 YEARS INCLUSIVE.

Years.	4½ Per Cent.	5 Per Cent.	6 Per Cent.	7 Per Cent.	8 Per Cent.	9 Per Cent.	10 Per Cent.	Years.
1	1.0450 0000	1.0500 000	1.0600 000	1.0700 000	1.0800 000	1.0900 000	1.1000 000	1
2	1.0920 2500	1.1025 000	1.1236 000	1.1449 000	1.1664 000	1.1881 000	1.2100 000	2
3	1.1411 6612	1.1576 250	1.1910 160	1.2250 430	1.2597 120	1.2950 290	1.3310 000	3
4	1.1925 1860	1.2155 063	1.2624 770	1.3107 960	1.3604 890	1.4115 816	1.4641 000	4
5	1.2461 8194	1.2762 816	1.3382 256	1.4025 517	1.4693 281	1.5386 240	1.6105 100	5
6	1.3022 6012	1.3400 956	1.4185 191	1.5007 304	1.5868 743	1.6771 001	1.7715 610	6
7	1.3608 6183	1.4071 004	1.5036 303	1.6057 815	1.7138 243	1.8280 391	1.9487 171	7
8	1.4221 0061	1.4774 554	1.5938 481	1.7181 862	1.8509 302	1.9925 626	2.1435 888	8
9	1.4860 9514	1.5513 282	1.6894 790	1.8384 592	1.9990 046	2.1718 933	2.3579 477	9
10	1.5529 6942	1.6288 946	1.7908 477	1.9671 514	2.1589 250	2.3673 637	2.5937 425	10
11	1.6228 5305	1.7103 394	1.8982 986	2.1048 520	2.3316 390	2.5804 264	2.8531 167	11
12	1.6958 8143	1.7958 563	2.0121 965	2.2521 916	2.5181 701	2.8126 648	3.1384 284	12
13	1.7721 9610	1.8856 491	2.1329 283	2.4098 450	2.7196 237	3.0658 046	3.4522 712	13
14	1.8519 4492	1.9799 316	2.2609 040	2.5785 342	2.9371 936	3.3417 270	3.7974 983	14
15	1.9352 8244	2.0789 282	2.3965 582	2.7590 315	3.1721 691	3.6424 825	4.1772 482	15
16	2.0223 7015	2.1828 746	2.5403 517	2.9521 638	3.4259 426	3.9703 059	4.5949 730	16
17	2.1133 7681	2.2920 183	2,6927 728	3.1588 152	3.7000 181	4.3276 334	5.0544 703	17
18	2.2084 7877	2.4066 192	2.8543 392	3.3799 323	3.9960 195	4.7171 204	5.5599 173	18
19	2.3078 6031	2.5269 502	3.0255 995	3.6165 275	4.3157 011	5.1416 613	6.1159 390	19
20	2.4117 1402	2.6532 977	3.2071 355	3.8696 845	4.6609 571	5.6044 108	6.7275 000	20
21	2.5202 4116	2.7859 626	3.3995 636	4.1405 624	5.0338 337	6.1088 077	7.4002 499	21
22	2.6336 5201	2.9252 607	3.6035 374	4.4304 017	5.4365 404	6.6586 004	8.1402 749	22
23	2.7521 6635	3.0715 238	3.8197 497	4.7405 299	5.8714 637	7.2578 745	8.9543 024	23
24	2.8760 1383	3.2250 999	4.0489 346	5.0723 670	6.3411 807	7.9110 832	9.8497 327	24
25	3.0054 3446	3.3863 549	4.2918 707	5.4274 326	6.8484 752	8.6230 807	10.8347 059	25
26	3.1406 7901	3.5556 727	4.5493 830	5.8073 529	7.3963 532	9.3991 579	11.9181 765	26
27	3.2820 0956	3.7334 563	4.8223 459	6.2138 676	7.9880 615	10.2450 821	13.1099 942	27
28	3.4296 9999	3.9201 291	5.1116 867	6.6488 384	8.6271 064	11.1671 395	14.4209 936	28
29	3.5840 3649	4.1161 356	5.4183 879	7.1142 571	9.3172 749	12.1721 821	15.8630 930	29
30	3.7453 1813	4.3219 424	5.7434 912	7.6122 550	10.0626 569	13.2676 785	17.4494 023	30
31	3.9138 5745	4.5380 395	6.0881 006	8.1451 129	10.8676 694	14.4617 695	19.1943 425	31
32	4.0899 8104	4.7649 415	6.4533 867	8.7152 708	11,7370 830	15.7633 288	21.1137 768	32
33	4.2740 3018	5.0031 885	6.8405 899	9.3253 398	12.6760 496	17.1820 284	23.2251 544	33
34	4.4663 6154	5.2533 480	7.2510 253	9.9781 135	13.6901 336	18.7284 109	25.5476 699	34
35	4.6673 4781	5.5160 154	7.6860 868	10.6765 815	14.7853 443	20.4139 679	28.1024 369	35
36	4.8773 7846	5.7918 161	8.1472 520	11.4239 422	15.9081 718	22.2512 250	30.9126 805	36
37	5.0962 6049	6.0814 069	8.6360 871	12.2236 181	17.2456 256	24.2538 353	34.0039 486	37
38	5.3269 1921	6.3854 773	9.1542 524	13.0792 714	18.6252 756	26.4366 805	37.4043 434	38
39	5.5658 9908	6.7047 512	9.7035 075	13.9948 204	20.1152 977	28.8159 817	41.1447 778	39
40	5.8163 6454	7.0399 887	10.2857 179	14.9744 578	21.7245 215	31.4094 200	45.2592 556	40
41	6.0781 0094	7.3919 882	10.9028 610	16.0226 699	23.4624 832	34.2362 679	49.7851 811	41
42	6.3516 1548	7.7615 876	11.5570 327	17.1442 568	25.3394 819	37.3175 320	54.7636 992	42
43	6.6374 3818	8.1496 669	12.2504 546	18.3443 548	27.3666 404	40.6761 098	60.2400 692	43
44	6.9361 2290	8.5571 503	12.9854 819	19.6284 596	29.5559 717	44.3369 597	66.2640 761	44
45	7.2482 4843	8.9850 078	13.7646 108	21.0024 518	31.9204 494	48.3272 861	72.8904 837	45
46	7.5744 1961	9.4342 582	14.5904 875	22.4726 234	34.4740 853	52.6767 419	80.1795 321	46
47	7.9152 6849	9.9059 711	15.4659 167	24.0457 070	37.2320 122	57.4176 486	88.1974 853	47
48	8.2714 5557	10.4012 697	16.3938 717	25.7289 065	40.2105 731	62.5852 370	97.0172 338	48
49	8.6436 7107	10.9213 331	17.3775 040	27.5299 300	43.4274 190	68.2179 083	106.7189 572	49
50	9.0326 3627	11.4673 998	18.4201 543	29.4570 251	46.9016 125	74.3575 201	117.3908 529	50

STOCKS, BONDS & INVESTMENTS.



THE capital stock of Railway, Telegraph, Insurance, Banking, and other corporations is divided into equal parts called shares, ranging from $10 to $1000 each, but usually $100, and to each stockholder is issued a certificate of stock duly signed by the proper officers, specifying the number of shares by him owned and their par value.

This stock certificate is transferable and may be bought and sold the same as other species of property. If sold above par it is said to be at a premium, or if below par, at a discount. Persons who make a business of buying and selling stocks are called stock brokers, and their occupation is denominated Stock Jobbing. The cause of the rise and fall of the market value of stocks is due, first, to the condition or success of the corporation in which the stock is owned, the dividend paid and its prospects for the future, and second, to the combinations and manipulations of stock brokers, as will be explained in another part of this work.

Instead of dividing the profits, as is done by a firm or partnership, the corporation "declares a dividend," either annually, semi-annually or quarterly, and pays to each stockholder the profits on his stock, reckoned at a certain per cent upon its par value. This dividend is generally paid in cash, but when it is the wish of the directors to increase the efficiency of the company by retaining the profits and using them for its benefit, a certificate is issued to the stockholder, entitling him to the sum specified therein with interest, and this is called a scrip dividend.

Out of the net earnings is first set aside what is called a "Reserve Fund," or "Sinking Fund," and the remainder declared as a dividend. This fund thus accumulates and furnishes the means for any emergency without taxing the stockholders, and if in any case the profits were not sufficient to justify the usual dividend, this fund is drawn on to make up the deficiency, thus keeping the dividend from year to year certain—retaining faith and credit in the company and in the value of its stock.

When the charter of a corporation forbids the declaring of a dividend which will exceed a certain per cent of the par value of its stock, then, new stock is sometimes issued, thus securing the stockholders the same profit though at a smaller rate per cent of dividend in consequence of the increase of the capital stock. This process is called "watering" stock. Common and preferred stock are so called because the latter has the preference in the matter of dividends.

To find the dividend on stocks, multiply the par value by the rate per cent of dividend which the stock pays.

Example. A owned $500 of Northwestern Railroad stock on which a dividend is declared of 8 per cent. What is his dividend?

Par value,	$500
Rate per cent,	.08
Dividend,	$40.00

When stock is bought or sold above or below par, to find the cost, multiply the par value of the stock by 100 per cent plus the advance, if at a premium, or 100 per cent less the discount, if at a discount.

Example. What will 12 shares ($100 each) of Erie stock cost at $4\frac{3}{8}$ per cent premium?

Par value,	$1200
Value of $1 worth of stock,	$1.04\frac{3}{8}$
	450
	4800
	1200
Cost of the stock,	$1252.50

BONDS.

A bond is in the nature of a promissory note. From the day laborer who pays as he goes, and the contented man of humble walk who never owes a debt, up to the corporation with its wealth and power, we find indebtedness and financial embarrassment increasing, so that the *per centage* of those under pecuniary difficulties *constantly augments* as we go upwards, until we come to municipalities, states and governments whose revenue is counted by millions, and we hardly find one that is not deeply involved in debt.

In prosecuting the war of the rebellion our government found it necessary to borrow large sums of money to meet the enormous expenditure, and in return issued interest-bearing bonds. States, counties and cities, engaged in public improvements raise money in this way. A coupon bond is one with interest-bearing certificates, or coupons attached, and as these fall due they

FORM OF A SHARE OF BANK STOCK.

469 NUMBER. 10 SHARES.

FIRST NATIONAL BANK

OF DE KALB. ILLINOIS.

CAPITAL STOCK FIFTY THOUSAND DOLLARS.

This certifies that James M. Cameron, is the owner of Ten Shares of the Capital Stock of FIRST NATIONAL BANK of the par value of ONE HUNDRED DOLLARS each, transferable only on the Books of the Bank in person or by Attorney on the surrender of this Certificate.

In Witness Whereof the President and Cashier have hereunto subscribed their names and caused the seal of the Bank to be affixed at De Kalb, Ill. this First day of January 18 .

John C. Otis Cashier. Martin Ryerson President.

are clipped off and cashed, as in the case of United States bonds, at any national bank, or may pass as money. Coupon bonds are payable to bearer, and if lost or stolen the amount cannot be recovered from the government or corporation issuing them. Registered bonds are those payable to the order of the holder or owner, and registered on the books of the United States Treasury, or corporation.

When bonds are issued by the government and are payable at a specified time, the rate of interest with the date, constitutes the name by which they are generally known, as "5's of '81," or "4's of '91, etc. Those payable at the option of the government within a certain number of years before the date of maturity, as between 5 and 20 years, are generally designated by combining the number of years for which they were issued by the time within which they may be called in, as "5–20s," or "10–40s."

Bonds issued by states, counties, or corporations, usually derive their name from the source that issues them, together with the rate of interest they bear. Thus, "U. S. Pacific currency 6's" were issued by the government to aid in the construction of railroads to the Pacific coast, and on the completion of each twenty miles of track, to receive at the rate of $16,000, $22,000 or $48,000 per mile, according to the difficulties of constructing the same. They are payable thirty years from date of issue and are registered in bonds of $1000, $5000 and $10000.

Money is sometimes borrowed by corporations on their property as security. For loans thus received they issue mortgage bonds payable at a specified time with interest. These bonds are secured by a mortgage on the property of the company.

INVESTMENTS.

The statement is perhaps true, that it is more difficult to keep money than to make it. By injudicious investments oftentimes the accumulations of years are swept away; but happy is that rich man who so wisely employs and invests his wealth as to escape the anxieties and cares which harass and torment, in the evening of life, when the possession of wealth should bring enjoyment instead of misery.

Widows and youthful heirs, who have little or no knowledge of business, are liable to have their fortunes swept away by trusting their investments entirely to others, or else through being seduced by tempting advertisements of brokers and their representatives to place their funds in worthless stocks or inadequate securities.

The first element of a good investment is that the *principal* should be secure, that it shall not be diminished through depreciation of values, nor lost through want of sound security. The second element is, that the principal can be readily obtained if it is wanted; security must be convertible, that is, easily realized. An investment, however secure, which ties up money irrevocably for years, is not a first-class one. The other and secondary elements of a good investment are, that the interest or return should be promptly paid, and that it should be as large as possible.

The legal rate of interest in most of the states of the American Union, is six per cent, and this is conceded by business men to be a fair price for the use of money or capital. When this interest is collected promptly and reinvested the income will be equivalent to the compound interest on the capital, and hence a net income of six per cent compound interest may be regarded as a standard in measuring the value of investments. It may be laid down as a rule, that where 15 or 20 per cent is promised from the loan or investment, a portion of this is in consideration of the insecurity of the principal, and this is a frequent source of loss.

Through miscalculation and the temptation of a large annual per centage, regarding 6 per cent compound interest as too small, persons often make the mistake of not receiving so much. Deducting commissions on the purchase or sale, taxes, insurance, assessments, buying above par and risk of the principal, and an income of 15 per cent will often be reduced to less than 6 per cent, as the following calculation will show: Suppose A buys unimproved land to the extend of $12000, and after holding it eight years, sells it at $21000. Inasmuch as $12000 at compound interest for eight years would amount to only $19126.18, it would appear that he had made a fine investment. But meanwhile he had incurred unavoidable expenses for fencing, taxes, surveying the property, commissions on sale, etc., which averaged 2 per cent a year, or $240. He must therefore deduct from the gross proceeds,

$240 at	compound	interest for	7	years, $360.86
240 "	"	"	6	" 340.32
240 "	"	"	5	" 321.17
240 "	"	"	4	" 302.98
240 "	"	"	3	" 285.84
240 "	"	"	2	" 269.66
240 "	simple	"	1	" 254.40
240	cash - - - - - -			240.00
				$2375.23

Land sold for	$21000
Deduct,	2375.23
Net sale,	$18624.77
Amount at 6 per cent,	$19126.18
Deduct	18624.77
Loss over 6 per cent investment,	$ 501.41

The most common investments are made in Real Estate, Government Bonds, Corporation Bonds, Bank Stock, Manufacturing Stock, etc., the income being derived from interests, dividends and rents.

REAL ESTATE INVESTMENTS.

In buying real estate the first point to be considered is the title. A competent person should be employed to examine the records. The purchaser should also ascertain if there exists any incumbrance by grant, prescription or necessity (not on record), such as a right of way, drain, fence, privy, overhanging eaves, trees, water-course, nuisance, etc., and if all taxes and assessments have been paid. Mortgages and liens should be closely scrutinized, and all receipts for taxes

and insurance policies should be produced and delivered up to the purchaser. Finally, the deed should be drawn and executed with the utmost accuracy. (See Legal Forms.)

Instead of investing money in real estate many persons prefer to make loans on real estate security, thus avoiding the inconvenience of collecting rents and the various outlays for repairs, incident to the ownership of property. Such loans are usually secured by mortgages or deeds of trust.

A mortgage is an instrument by which, if the debt secured by it is not paid at the time agreed upon, the creditor may take possession of the property, by what is termed a foreclosure, subject, however, to the debtor's right of redemption within a specified time. (See Legal Forms.) Mortgages are first, second, third, etc., in their order of record. A first mortgage is superior to all others, and careful investors refuse to loan money except on first lien. The reasons are, that if the property is sold to pay the debts, the first mortgage must be paid in full before anything is paid on the second, and if the property depreciates through fire or flood the first mortgage has still sufficient security, but subsequent mortgages may have all their security swept away. A safe rule is not to loan on mortgage for more than one-half of the value of the real estate.

From respective considerations, it is doubtful that the annual net income from real estate in the country at large, exceeds four per cent. In some business centers or certain localities, the increase in value alone gives larger average yearly increase than the rate named; but the fact that such increase is first obtained by very liberal expenditure for street improvements, sewers, etc., should not be lost sight of. This increase in one locality is sometimes made at the expense of some other locality, whose property values are therefore reduced in greater or less ratio. The growth of certain localities in some parts of the country is promoted thus by the transfer of capital and population. From this transfer of capital and population, or other changes affecting the growth and decline of towns and cities, there arises a disposition to discriminate in favor of other classes of investments. But there are many instances where money can be well invested in real estate, by parties who use caution in making selections and then taking pains to make judicious outlays for the improvement of the property. It is best to be well posted on all the points relating to real estate before investing in it.

UNITED STATES BONDS.

United States Bonds are regarded as exceptionally good investments, based as they are on the faith and credit of the government. The rate of interest is not large, but owing to the certainty of payment of interest and principal they are much sought after by persons who desire safe investments rather than a large profit together with risk and inconvenience.

SMALL SAVINGS.

Experience and observation show that no more certain plan of inculcating prudent and temperate habits, modest living, and general well-being in a community can be devised than to afford the poorer classes facilities for saving their small gains, and increasing them with interest. The animosity between capital and labor, money and work, is diminished, for even the poorest is thus enabled to taste the pleasures of witnessing his capital increase without toil.

Every man who is obliged to work for his living should lay aside a little money for the "rainy day," which all are liable to encounter, and the best way to do this is to open an account with some savings bank. Accumulated money is always ready to use when needed. Scrape together five dollars, make your deposit, get your bank book, and then resolve to deposit a given sum, small though it be, once a month or once a week, according to circumstances. Nobody knows without trying it, how easy a thing it is to save money when an account with a bank has been opened. With such an account a man feels a desire to enlarge his deposit. It gives him lessons in frugality and economy, weans him from habits of extravagance, and is the very best guard against intemperance and dissipation. The laboring man who saves one hundred dollars a year, or about a quarter of a dollar a day, and deposits it in a savings bank which pays 7 per cent interest compounded quarterly, will find himself, in a score of years, worth nearly *five thousand dollars*, from this source alone, without any trouble and very little self-denial. He should aim to do this for every child that is born to him.

TABLE SHOWING THE RESULT OF SAVINGS.

SAVING.	HOW OFTEN DEPOSITED.	INTEREST.	HOW OFTEN COMPOUN'D.	TIME	AMOUNT TO	OR IN	AMOUNT TO
$1	Monthly.	6 per cent.	Semi-an'ly.	10 yr.	$ 161.22	20 yr.	$ 452.41
2	"	6 per cent.	"	10 yr.	322.44	20 yr.	904 84
1	Weekly.	6 per cent.	"	10 yr.	968.62	20 yr.	1960.43
2	"	6 per cent.	"	10 yr.	1397.24	20 yr.	3920.86
3	"	6 per cent.	"	10 yr.	2095.86	20 yr.	5881.29
5	"	6 per cent.	"	10 yr.	3493.10	20 yr.	9802.15
8	"	6 per cent.	"	10 yr.	7748.96	20 yr.	15083 44

PRACTICAL MEASUREMENTS.

TO MEASURE CORN ON THE COB IN CRIBS.

Corn is extensively put up in cribs made of rails, but the rule will apply to any kind of a crib. Level the corn, then measure the hight of the corn in the crib, the length, and also the width, allowing for the thickness of the crib in outside measure, then multiply the length in feet by the breadth in feet and this again by the hight in feet, which last product multiply by 8 and cut off one figure from the result. This will give so many bushels and decimals of a bushel. After being shelled there will, on an average, be one-half as many bushels of shelled corn.

Example. A crib of corn is 9 feet high, 20 feet long and 12 feet wide. How many bushels of corn does it contain?

$20 \times 9 = 180 \times 12 = 2160 \times 8 = 1728.0$ bu.

When a crib is flared at the sides, as represented by the illustration, a rule is to multiply half the sum of the bottom breadths in feet by the perpendicular hight in feet, and the same again by the length in feet, multiply the last product by .63 for heaped bushels of ears, and by .42 for the number of bushels in shelled corn. This rule is based on the generally accepted estimate that three heaped half bushels of ears, or four even full, form one of shelled corn.

A barrel of corn is five bushels shelled. By this latter measure crops are estimated, and corn bought and sold in most southern and western states.

MEASURING HAY.

Of course the only accurate method of finding the amount of hay in a given bulk is to weigh it. This, in many cases, is impossible, owing to its bulk and character, and it then becomes necessary to have some other method of arriving at the quantity, which can only be done approximately. Some kinds of hay are light while others are heavy, but for all ordinary purposes of estimating the amount of hay in mows and stacks the following rules will be found sufficient:

When loaded on wagons or stored in barns, 20 cubic yards of hay make a ton.

When well settled in mows or stacks, 15 cubic yards make a ton. This is for medium sized mows or stacks; if the hay is piled to a great hight, it will be much more compact and near the bottom will be much heavier per cubic yard.

TO FIND THE NUMBER OF TONS IN LONG SQUARE STACKS.

Multiply the length in yards by the width in yards and that by *half* the hight in yards, and divide by 15.

Example. How many tons in a rick of hay 20 yards long, 5 yards wide and 8 yards high?

$20 \times 5 = 100 \times 400 = 400 \div 15 = 26\frac{2}{3}$ tons. Ans.

TO FIND THE NUMBER OF TONS IN CIRCULAR STACKS.

Multiply the square of the distance round the stack in yards by the hight in yards and divide by 25. This will give the number of cubic yards in the stack; then divide by 15 for the number of tons.

Example. How many tons of hay in a circular stack, whose measurement around the base is 20 yards and hight 8 yards?

$20 \times 20 = 400 \times 8 = 3200 \div 25 = 128 \div 15 = 8\frac{8}{15}$ tons. Ans.

Common clover and timothy hay packed under ordinary circumstances, will measure 500 cubic feet to the ton. In calculating the weight of hay in bulk, very often many things have to be taken into consideration, and hence it is difficult to ascertain it precisely.

TO FIND THE VALUE OF HAY OR OTHER ARTICLES SOLD BY THE TON.

Multiply the number of pounds of hay (coal or anything else which is bought or sold by the ton) by one-half the price per ton, and point off three figures from the result; the remaining figures will be the price of the hay.

Example. What cost 1460 lbs. of hay when hay is selling at $12 per ton?

$12 ÷ 2 = $6 and 1460 × 6 = $8.760. Ans.

Dividing by 2 gives us the price of a half ton or 1000 lbs. and pointing off three figures to the right is dividing by 1000.

A ton	of hay	is	2000	lbs.
A bale	"	"	300	"
A truss	"	" new is	60	"
A	"	" old "	56	"
A	"	" straw "	40	"
A load	"	hay "	36	trusses.

When hay sells at $16.00 a ton the bale is worth $2.40
" " " " 15.00 " " " " 2.25
When hay sells at 14.00 a ton the bale is worth 2.10
When hay sells at $13.00 a ton the bale is worth $1.95
" " " " 12.00 " " " " 1.80
" " " " 11.00 " " " " 1.65
" " " " 10.00 " " " " 1.50

TO FIND THE WEIGHT OF CATTLE BY MEASUREMENT.

Multiply the girth in inches by the distance along the back from the tail to the fore part of the shoulder blade, and divide by 144 for the superficial feet. Then multiply the superficial feet by the number of pounds allowed for cattle of different girths and the product will be the number of pounds of beef, veal or pork in the animal.

Cattle having a girth of from 5 to 7 feet, allow 23 lbs. to the superficial foot.

Cattle having a girth of from 7 to 9 feet, allow 31 lbs. to the superficial foot.

Small cattle and calves having a girth of from 3 to 5 feet, allow 16 lbs. to the superficial foot.

Pigs and sheep having a girth of less than 3 feet, allow 11 lbs. to the superficial foot.

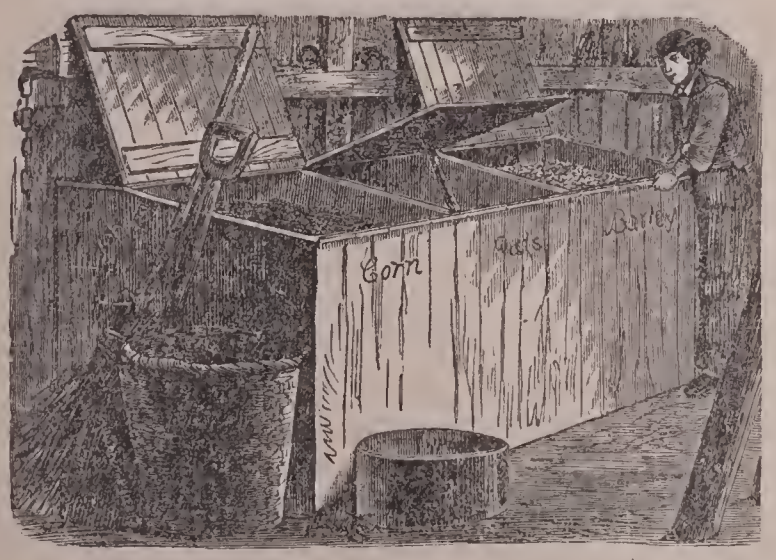
Example. What is the weight of beef in a steer, whose girth is 80 inches and length is 68 inches?

80 inches in girth × 68 inches in length = 5440 ÷ by 144 = $37\frac{3}{4}$ square feet × 23 = $868\frac{1}{4}$ lbs.

When the animal is but half fattened a deduction of 1 lb. in every 20 is made, and if very fat 1 lb. for every 20 must be added.

MEASURING GRAIN.

TO FIND THE CONTENTS OF A BIN IN BUSHELS.



By the United States standard 2150.42 cubic inches make a bushel. As a cubic foot contains 1728 cubic inches, a bushel is to a cubic foot nearly as 2150 to 1728; or for all practical purposes as 5 to 4. Therefore, to convert cubic feet into bushels, it is only necessary to multiply by $\frac{4}{5}$.

Example. How many bushels of wheat in a bin 12 feet long, 8 feet wide and 4 feet deep?

12 × 8 = 96 × 4 = 384 cubic feet; 384 × $\frac{4}{5}$ = $307\frac{1}{5}$ bushels.

In order to find the number of bushels which a bin of a given size will hold, find the contents of the bin in cubic feet, then diminish the contents by one-fifth, and the result will be the contents in bushels.

CAPACITY OF BOXES.

The following table will often be found convenient, taking *inside* dimensions:

A box 24 inches by 16 inches, and 28 inches deep will contain a barrel.
A box 26 inches by 15½ inches, and 8 inches deep will contain a bushel.
A box 13½ inches square and 11¼ inches deep, will contain a bushel.
A box 12 inches by 11½ inches, and 9 inches deep will contain a half bushel.
A box 10 inches square and 10¾ inches deep, will contain a half bushel.
A box 8 1-5 inches by 8 inches square, and 8 inches deep, will contain a peck.
A box 8 inches square and 4⅛ inches deep, will contain a gallon.
A box 7 inches square and 4½ inches deep, will contain a half gallon.
A box 3 inches square and 4 1-5 inches deep, will contain a quart.
A box 3 inches square and 3⅜ inches deep, will contain a pint.

A wagon-box or bed 10 feet long, 4 feet wide, and 15 inches deep, has a capacity of 40 bushels.

TO FIND THE CAPACITY OF A CISTERN OR WELL.

CYLINDRICAL VESSELS OF UNIFORM WIDTH.

THE gallon is, according to the United States standard, 231 cubic inches, and in order to find the number of cubic inches in a cask, we square the diameter in inches, and multiply by the decimal .7854 to find the surface of the base, then multiply this by the depth in inches. Now since multiplying by .7854 and afterwards dividing by 231 is equivalent to multiplying only by 34, it will be seen that we have the following rule:

Multiply the square of the diameter in inches, by the depth in inches, and this by 34, and point off four figures; the result will be the capacity in gallons and decimals of a gallon.

Example. A can measures 15 inches in diameter, and is 2 feet 2 inches deep. How many gallons of oil will it contain?

$15 \times 15 = 225 \times 34 = 7650 \times 26 = 19.8900$. Ans. $19\frac{89}{100}$.

If the can is not full, stand it on the end, and multiply by the height of the liquid instead of the length of the can, for the actual contents.

CISTERNS WIDER AT ONE END THAN THE OTHER.

Add the width at the top and the width at the base together and take half, to find the average diameter, then square this diameter, multiply by 34, and this result again by the depth, and the result will be in gallons and decimals of gallons as in the previous rule.

In calculating the capacity of cisterns, etc., $31\frac{1}{2}$ gallons are estimated to one barrel, and 63 gallons to 1 hogshead.

MEASURING LAND.

SURVEYING seems to have arisen from the practice of regulating the limits of lands which were from time to time impaired from the overflow of the Nile. From surveying, the ancient science of geometry took its rise, and the Egyptians bestowed attention to it at a very early period. The mathematical principles of geometry are now used in surveying.

Every citizen of the nation has more or less relative interest in the art of determining the boundaries and superficial extent of tracts of ground, the plans of towns, the courses of roads, rivers, etc.

In surveying, a representation of all the above-named objects is made, and frequently the slopes of the hills are delineated as the whole would appear if projected on a horizontal plane. When railways or canals are to be constructed, a survey of the ground is combined with the operations of leveling, in order to obtain, besides a horizontal plan, the forms of vertical sections of the ground along the proposed course of the railway or canal, and thus to ascertain the quantities of earth to be removed.

There are many kinds of surveying in use, each distinct from the other; thus we have marine surveying, land surveying, house surveying, military surveying, etc. In the more limited acceptation of the word, however, land surveying only is intended. This is conducted in several manners, according to the nature of the ground; for example, supposing it should be an irregular field, it would be measured by taking the base line along the field, and by means of the theodolite, the cross, or some other instrument, taking lines perpendicular to this, reaching to the various angles. If the length of these lines be taken, and also the various distances along the base line where they start from, it will divide the field into a number of right-angled parallelograms or right-

angled triangles. The contents of each is calculated, and then the sum of all of them is the contents of the field. Or the field may be divided into triangles, the contents of each is ascertained, and the area found as before, by adding their areas together.

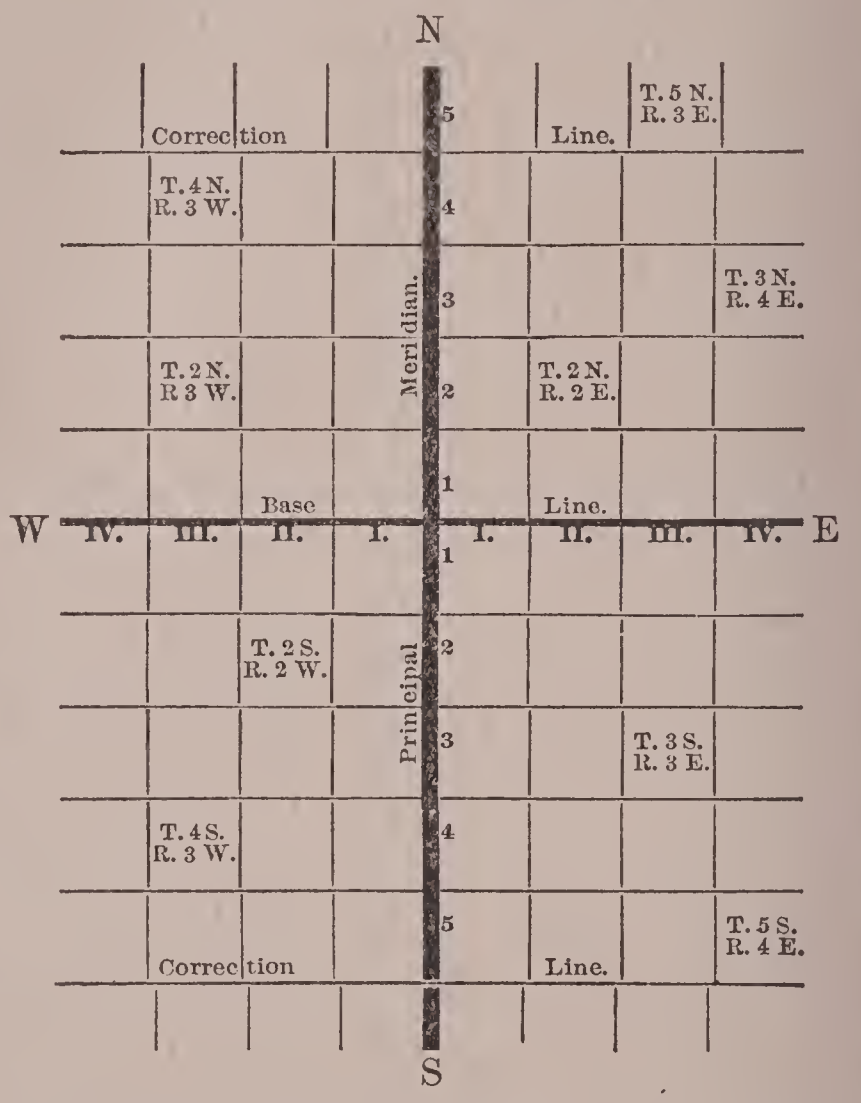
Oftentimes the intervention of water, wood, cornfields, etc., prevents the actual passage of the surveyor over the ground; in that case he must contrive to take some one base line across a field or along a hedge, and from the ends of that line take the angular position of distant points, calculating afterward the remaining sides of the triangles thus got out by trigonometry. Marine surveying, such as that of harbors, bays, etc., is performed by this method. The implements used in surveying are Gunter's Chain, the Cross, and the Theodolite.

Congress, in May, 1796, made provision for a uniform system of surveys of public lands. Thomas Jefferson is named as the author of it. A lot (No. 16) in each township was set apart for the benefit of public schools. After 1852, two sections in each township were set apart as the quantity to be used for this purpose. Surveys are not extended across Indian reservations, nor over any lands not property of the United States. Much land in the territories still remains unsurveyed.

In the United States the public lands are divided into townships, and these are divided into sections. These townships and sections are denominated by a simple system of numbering, of which all the Western and some of the Southern states make constant use. Through some convenient point in a territory to be surveyed, generally some natural landmark, a meridian or true north and south line, for instance, such as those running respectively from the mouths of Little Blue creek (Indiana), Ohio river, Illinois river (Illinois), Arkansas river, etc., is carefully run to the limits of the tract, or through several states, as the case may be. This is called the Principal Meridian. Through a convenient point upon the principal meridian, a true parallel of latitude is run and measured in both directions from the meridian. This cross line is called the Base Line. At the end of every mile and half mile, and at the end of every six miles, stakes, monuments, or other marks are set, by which boundaries are marked. Additional parallel lines, according to later surveys, are called Correction Lines, and are twenty-four or thirty miles apart; also, true meridian lines fifty-four miles apart, are known as guide meridians. These lines, from principal meridian inclusive, are astronomical lines. All other lines are run with chain and compass. These latter are subject to mistakes which arise from variation of the needle, and from the fact that a perfectly accurate measurement cannot be made with the chain.

A principal meridian line, a base line, correction lines, township boundary or meridian lines on the east and west, and parallels of latitude on the north and south, are shown in the diagram.

PRINCIPAL OR ASTRONOMICAL LINES.



Townships are represented by the squares. Figures on the principal meridian show Townships North and South of the base line. Numerals on the base line show Ranges East and West of the Principal Meridian.

Example. Township 2 North, Range 3 West, is the second square above the base line, in the row of squares whose range is west either north or south of the base line.

As distinguished from the above example, a square on the other side of the principal meridian is *east*, whether it be north or south of the base line.

Example. Township 5 South, Range 4 East. Examine the diagram.

Correction lines on the north of the base line are twenty-four miles, or equal to four townships apart—south of the base line they are five townships, or thirty miles apart, in consequence of the greater convergence of the meridians in the higher latitudes.

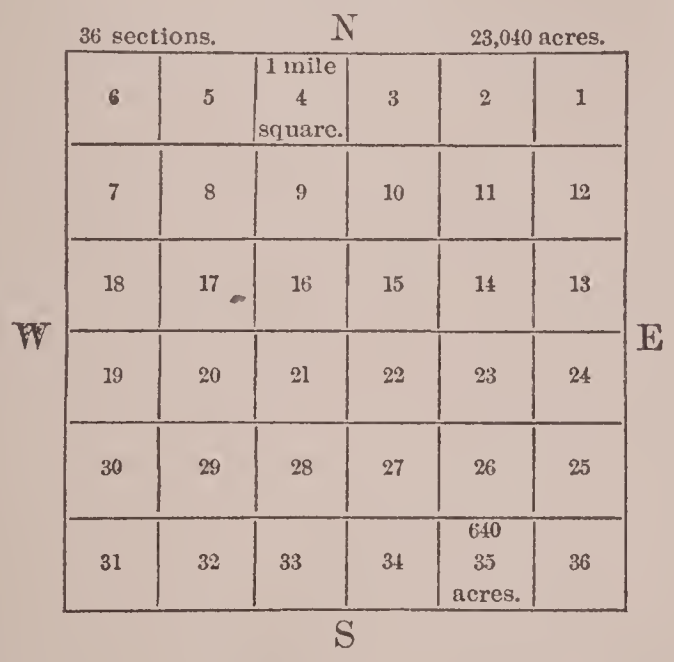
A true meridian must be established, and this serves as a basis for all surveys. A surveyor begins a survey from some particular point, setting a stake called a "quarter stake" at each half-mile point, and a mark called a "section corner" at each mile point. A township corner is marked at each six-mile point, and is called "township corner." Township boundaries are the lines six miles apart—meridians on the east and west, and parallels of latitude on the north and south.

A Township, being six miles square, it therefore contains 36 square miles, or 23,040 acres. It is subdivided into Sections, each a square mile, containing 640 acres.

A Quarter Section, a half-mile square, contains 160 acres, and is divided into lots of 40 acres each.

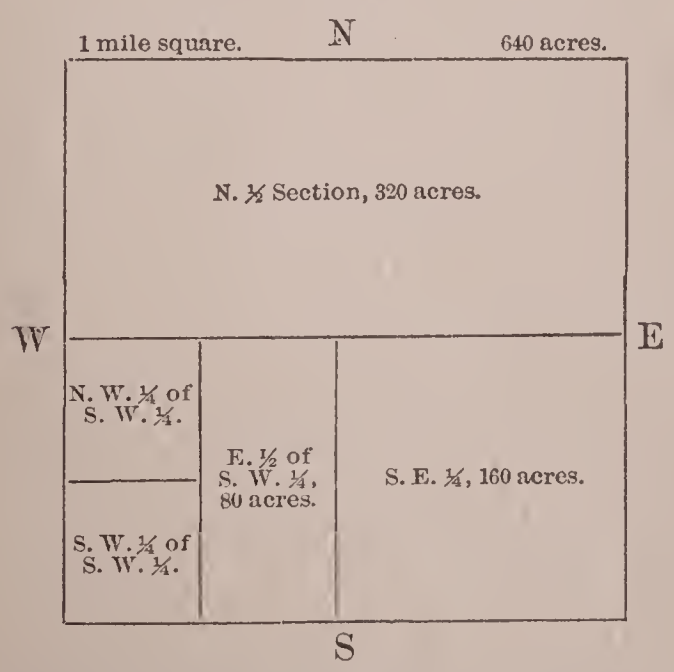
An Eighth of a Section is one-half mile long and 80 rods wide, and contains 80 acres.

TOWNSHIP.



Sections of a township are, strictly, each one mile square "as nearly as may be." The sections are numbered, beginning at the northeast corner, as shown in the illustration of the township, and these numbers run in unbroken order, so that sections always join each other in the order of their numbers.

SECTION.



Lands of the United States are surveyed into the parcels called sections, and are subdivided into quarters, and sometimes into eighths and sixteenths. The diagram shows the divisions and subdivisions of a section, and the method of describing them.

When the number and range of a township are given, it is required to know from what meridian it is reckoned, and where its base line crosses that meridian, in order to locate the township.

There are as many as twenty-three principal meridians in the United States, the first one being same as west boundary of Ohio, with base line same as south boundary of Western Reserve. Second principal meridian runs due north from the mouth of Little Blue creek, in Indiana, the base line crossing it near New Albany. Other principal meridian lines are located still further west and in other parts of the country.

CONVERGING LINES.

Township corners on a base line or on a correction line, are carefully marked at distances of six miles apart. Owing to the convergence of meridians, however, the townships accurately surveyed are not perfect squares, being longer on the southern than on the northern boundary. In consequence of the rotundity of the earth, as well as on account of our position on its surface north of the equator or widest part, all measurements of the land must be accommodated to lines which incline and approach nearer together as they are extended in the direction of the pole. This convergence of lines is illustrated by a simple cut.

CONVERGENCE OF ASTRONOMICAL LINES.

All sections are surveyed from north to south. With regard to deficiencies and excesses, the law requires that "In all cases where the exterior lines of townships,

thus to be divided into sections or half-sections, shall exceed or shall not extend six miles, the excess or deficiency shall be specially noted, and added to or deducted from the western or northern ranges of sections in such township."

TABLE.

6 mi.	×	6 mi.	=	36 sq. mi.	=	23040 acres	= 1 Township.
1 "	×	1 "	=	1 "	=	640 "	= 1 Section.
1 "	×	½ "	=	½ "	=	320 "	= ½ Section.
½ "	×	½ "	=	¼ "	=	160 "	= 1 Quarter-Section.
½ "	×	¼ "	=	⅛ "	=	80 "	= ½ Quarter-Section.
¼ "	×	¼ "	=	1/16 "	=	40 "	= ¼ Quarter-Section.

Though no survey can be absolutely correct, the government presumes that each township or regular parcel or part of the same contains the number of acres indicated by the table, "be the same more or less." Exceptions are only in cases of irregular lots adjoining lakes, rivers, private claims, etc., and on the north and west sides of a township.

In laying off small lots the following admeasurements will be found to be both accurate and useful:

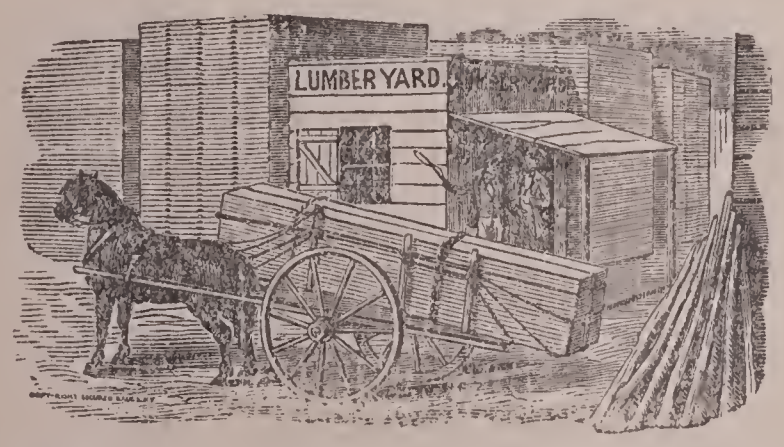
52½	feet	square,	or	2.722½	square	feet,	= 1/16	of an acre.
73⅔	"	"		5,445	"	"	= ⅛	" "
104⅓	"	"		10,890	"	"	= ¼	" "
120½	"	"		14,520	"	"	= ⅓	" "
147 7/12	"	"		21,780	"	"	= ½	" "
208⅔	"	"		43,560	"	"	= 1	acre.

To find the number of acres in a body of land, multiply the length by the width (in rods), and divide the product by 160; the result will be the answer in acres and hundredths.

To obtain the result required, when the opposite sides of a piece of land are of unequal length, add them together and take one-half for the mean length or width. Multiply this by the depth, and divide by 31½.

The number of acres of public lands surveyed in the United States and territories, up to June 30, 1896, is 1,815,424,388.

RULES FOR MECHANICS.



IN THE construction or repairing of buildings, it becomes necessary to form estimates of the expense, and hence all persons should have some knowledge of the rules by which mechanics make their calculations.

TIMBER MEASURE.

The unit of measure is a square foot 1 inch thick, in measuring boards, plank and timber.

TO MEASURE INCH BOARDS.

Multiply the length of the board in feet by its breadth in inches, and divide the product by 12; the quotient will be the number of square feet in the boards.

When the board is wider at one end than the other, take the average width, which is found by adding the width of both ends together and taking half the sum.

Example. How many square feet in a board 10 feet long and 14 inches wide at one end and 10 inches wide at the other?

14 + 10 = 24 ÷ 2 = 12, average width, 12 × 10 = 120 ÷ 12 = 10 feet. Ans.

TO FIND THE NUMBER OF FEET IN SCANTLING.

Multiply the width in inches by the thickness in inches, and that by the length in feet and divide by 12.

Example. How many feet of lumber in 15 joist 14 feet long, 8 inches wide and 2 inches thick?

8 × 2 = 16 × 14 feet = 224 ÷ 12 = 18⅔ feet in one joist, 18⅔ × 15 = 280 feet.

After having ascertained the number of feet in a given quantity of lumber, sold by the 1000 feet, multiply the number of feet by the price and point off three figures from the right, the remaining figures will represent the price in dollars.

Example. What cost 280 feet of lumber, as in the above example, when joists are selling at $14 per thousand feet?

280 × 14 = $3.920. Ans.

TO FIND THE QUANTITY OF LUMBER IN A LOG.

Multiply the diameter in inches at the small end by one-half the number of inches, and this product by the length of the log in feet, which last product divide by 12.

Example. How many feet of lumber can be made from a log 30 inches in diameter and 14 feet long?

$30 \times 15 = 450 \times 14 = 6300 \div 12 = 525$ feet. Ans.

TO TELL THE SOUNDNESS OF TIMBER.

Apply the ear to the middle of one of the ends, while another party strikes the other end. The blow will be clearly and distinctly heard, however long the beam may be, if the wood is sound and of good quality, but if decay has set in, the sound will be muffled and indistinct. The toughest part of a tree will always be found on the side next the north.

SCANTLING AND TIMBER MEASURE REDUCED TO ONE INCH BOARD MEASURE.

Explanation. To ascertain the number of feet of scantling or timber, say 18 feet long and 2 by 3 inches. Find 2 by 3 in the top columns, and 18 in the left hand column, and under 2 by 3 and against 18 is 9 feet.

If the scantling is longer than contained in the table, add two lengths together. If shorter, take part off same length.

Feet.	THICKNESS AND WIDTH IN INCHES.															
	2x2	2x3	2x4	2x5	2x6	2x7	2x8	2x9	3x3	3x4	3x5	3x6	3x7	3x8	3x9	4x4
6	2.	3.	4.	5.	6.	7	8.	9.	4.6	6.	7 6	9.	10.6	12.	13.6	8.
7	2.4	3.6	4.8	5.10	7.	8.2	9.4	10.6	5.3	7.	8.9	10.6	12.3	14.	15.9	9.4
8	2.8	4.	5.4	6.8	8.	9.4	10.8	12.	6.	8.	10.	12.	14.	16.	18.	10.
9	3.	4.6	6.	7.6	9	10.6	12.	13.6	6.9	8.	11.3	13.6	15.9	18.	20.3	12.
10	3.4	5.	6 8	8.4	10	11.8	13.5	15.	7.6	10.	12.6	15.	17.6	20.	22.6	13.4
11	3.8	5.6	7.4	9 2	11	12.10	14.8	16.6	8.3	11.	13.9	16.6	19.3	22.	24.9	14.8
12	4.	6	8.	10	12.	14.	16.	18	9	12.	15.	18.	21.	24.	27.	16.
13	4 4	6.6	8 8	10.10	13	15.2	17.4	19.6	9.9	13.	16.3	19.6	22.9	26.	29.3	17.4
14	4.8	7.	9.4	11.8	14	16.4	18.8	21.	10.6	14.	17 6	21.	24.6	28.	31.6	18.8
15	5.	7.6	10.	12 6	15.	17.6	20.	22.6	11 3	15.	18.9	22.6	26.3	30.	33.9	20.0
16	5 4	8.	10.8	13.4	16.	18.8	21.4	24	12	16.	20.	24.	28.	32.	36.	21.4
17	5.8	8.6	11.4	14.2	17	19.10	22.8	25.6	12.9	17	21.3	25.6	29 9	34.	38.3	22.8
18	6.	9.	12.	15.	18	21	24.	27.	13 6	18.	22.6	27.	31.6	36.	40.6	24.
19	6.4	9.6	12 8	15 10	19	22 2	25.4	28.6	14 3	19.	23.9	28.6	33 3	38.	42 9	24.4
20	6.8	10.	13.4	16.8	20	23.4	26 8	30	15.	20.	25	30.	35.	40.	45.	26.8
21	7.	10.6	14.	17 6	21.	24.6	28.	31 6	15 9	21.	26.3	31.6	36.9	42.	47 3	28.
22	7.4	11.	14.8	18.4	22.	25 8	29.4	33.	16.6	22.	27.6	33.	38.6	44.	49.6	29.4
23	7.8	11.6	15.4	19 2	23.	26 10	30.8	34.6	17 3	23.	28.9	34.6	40.3	46.	51.9	30.8
24	8.	12.	16.	20.	24.	28	32	36	18	24.	30.	36.	42.	48.	54.	32
25	8.4	12.6	16.8	20 10	25	29 2	33.4	37 6	18.9	25.	31.3	37 6	43 9	50.	56.3	33.4
30	10	15.	20.	25.	30.	35.	40	45.	22.6	30.	37.6	45.	52.6	60.	67.6	40.
34	11.4	17.	22.8	28.4	34.	39 3	45 4	51.	25.6	34	42.6	51.	59.6	68.	76.6	45.4
40	13.4	20.	26.8	33.4	40	46 8	53.4	60.	30.0	40.	50	60.	70.	80.	90.	53.

Feet.	THICKNESS AND WIDTH IN INCHES.														
	5x4	4x6	4x7	4x8	4x9	5x5	5x6	5x7	5x8	5x9	6x6	6x7	6x8	6x9	6x10
6	10.	12.	14·	16.	18	12.6	15.	17.6	20	22 6	18.	21.	24.	27.	30.
7	11.8	14	16.4	18 8	21	14.7	17.6	20.5	23.4	26.3	21.	24.6	28.	31.6	35.
8	13 4	16.	18.8	21.4	24.	16.8	20.	23.4	26.8	30.	24.	28.	32.	36.	40.
9	15	18.	21.	24.	27	18·9	22.6	26.3	30.	33.9	27.	31 6	36.	40.6	45.
10	16.8	20.	23.4	26.8	30	20·10	25.	29.2	33 4	37.6	30.	35.	40.	45.	50.
11	18.4	22.	25.8	29.4	33·	22.11	27.6	32.1	36.8	41.3	33.	38.6	44.	49.6	55.
12	20.	24.	28.	32.	36.	25.	30.	35.	40.	45.	36.	42.	48.	54.	60.
13	21.8	26.	30 4	34.8	39·	27.1	32.6	37.11	43.4	48.9	39.	45.6	52.	58.6	65.
14	23·4	28.	32.8	37.4	42.	29.2	35.	40.10	46.8	52.6	42.	49.	56.	63.	70.
15	25.	30.	35.	40.	45.	31.3	37.6	43 9	50.	56.3	45.	52.6	60.	67.6	75.
16	26.8	32.	37.4	42.8	48	33.4	40.	46.8	53.4	60.	48.	56.	64.	72.	80.
17	28.4	34.	39.8	45.4	51.	35 5	42.6	49.7	56.8	63 9	51.	59.6	68.	76.6	85.
18	30	36.	42	48.	54.	37.6	45.	52.6	60.	67 6	54.	63.	72.	81.	90.
19	31.8	38.	44 4	50.8	57.	39.7	47.6	55.5	63.4	71.3	57.	66.6	76.	85.6	95.
20	33.4	40	46 8	53.4	60.	41.8	50.	58.4	66.8	75.	60.	70.	80.	90.	100.
21	35.	42.	49.	56.	63.	43.9	52.6	61.3	70.	78.9	63.	73.6	84.	94.6	105.
22	36 8	44.	51.4	58.8	66.	45.10	55.	64.2	73.4	82.6	66.	77.	88.	99.	110.
23	38.4	46.	53.8	61·4	69	47.11	57.6	67.1	76.8	86.3	69.	80.6	92.	103.6	115.
24	40.	48	56.	64.	72.	50.	60.	70.	80.	90.0	72.	84.	96.	108.	120.
25	41.8	50.	58.4	66.8	75.	52.1	62.6	72.11	83.4	93.9	75.	87.6	100.	112.6	125.
30	50.	60.	70.	80	90.	62.6	75.	87.6	100.	112.6	90.	105.	120.	135.	150.
34	56.8	68.	79.4	90.8	102.	70.10	85.	99.2	113.4	127.6	102.	119.	136.	153.	170.
40	66.8	80.	93.4	106.8	120.	83.4	100.	116.8	133.4	150.	120.	140.	160.	180.	200.

WOOD MEASURE.

WOOD is measured, and bought and sold by the cord, and fractions of a cord. A cord of wood is a pile 8 feet long, 4 feet wide and 4 feet high, and therefore contains 128 cubic feet. When the wood is cut 4 feet long and corded in a pile 4 feet high and 8 feet long, this will be a cord. Hence, divide by 128 to find the number of cords.

Example. How many cords of wood in a pile 4 feet wide, 5 feet high and 28 feet 6 inches long?

$4 \times 5 = 20 \times 28$ feet 6 inches or $28\frac{1}{2}$ feet $= 570$ cubic feet $\div 128 = 4\frac{1}{2}$ cords nearly. Ans.

GROWTH, QUALITY, AND WHEN TO SECURE TIMBER.

Timber grown in the northern states and Canada is hardy and more merchantable, but a northern climate is inimical to mahogany, box, lignumvitæ, and other dense tropical woods which require a warm climate. Trees grown in wet localities, with the exception of cedar, willow, poplar, etc., are not so firm and durable as those grown on dry and elevated positions, where the soil is largely composed of loam, interspersed with sand, gravel and stones.

Those found in the depths of the forest are usually straighter, less knotty, and more merchantable than trees exposed to the ravages of storms, etc., bordering on clearings, or on hill sides and exposed places. While sheltered positions are most favorable for the growth of timber, the quality of hardness is imparted by exposure.

BRICKLAYERS' AND STONE-MASONS' WORK.

STONE walls are measured and estimated by the perch, which is equal to 24¾ cubic feet. Cut stone, ordered to certain sizes, for arches or fronts to buildings, is sold by the cubic foot. In estimating the stone in a wall, no deductions are made for the openings, such as doors and windows, less than one perch, and the perch is then usually reckoned at 25 cubic feet. The labor of plumbing and squaring openings for doors and windows is equivalent to laying the solid wall, hence no deductions are made for the labor on account of openings, and, in fact, where there are many windows, something is added.

Bricklayers' work is estimated by the thousand brick laid in the wall. A certain number of bricks are allowed to the superficial foot. The usual size of a brick is 8 inches long, 4¼ inches wide, and 2½ inches thick, but in different localities and by different manufacturers the size varies a little. The mortar used in the wall is about one-eighth additional to the bricks.

SCALE.

4½	inch	wall	(½	brick)	per	superficial	foot,	7 bricks.
9	"	"	(1	brick)	"	"	"	14 "
13	"	"	(1½	bricks)	"	"	"	21 "
18	"	"	(2	bricks)	"	"	"	28 "
22	"	"	(2½	bricks)	"	"	"	35 "

and seven bricks additional for each half brick added to the thickness of the wall.

To find the number of bricks in a wall, multiply the length in feet by the hight in feet, deduct for the openings, and multiply by the number of bricks in the above scale, corresponding to the thickness of the wall.

A load of mortar measures 1 cubic yard, or 27 cubic feet, and requires one cubic yard of sand, and 9 bushels of lime, and will fill 30 hods. A bricklayer's hod is 1 foot 4 inches x 9 inches x 9 inches, and will carry 20 bricks, or ⅔ cubic foot of mortar, or nearly ½ bushel. Bricks absorb $\frac{1}{15}$ of their weight in water.

Classes of work in masonry are three, which consist of rubble work, wherein the stones are not squared; coursed work, in which the stones are set in courses; and ashlar, in which each stone is squared and dressed.

PLASTERERS' WORK.

The square yard is the unit of measurement for plastering plain work, such as walls and ceilings. Mouldings, cornices, center pieces and panels are charged for by the square foot or by the linear foot. No deductions are made for openings less than about 5 square yards, and sides of chimneys and strips of plastering less than 12 inches are measured as 12 inches wide. Where the plastering is finished down upon the wainscoting or base boards, add six inches to the hight of the wall. In closets add one-half to the measurement. Circular work, mouldings, etc., are usually charged for according to the time and skill required, and really bear no proportion to the cost of ordinary plastering.

TO FIND THE NUMBER OF YARDS OF PLASTERING IN A ROOM.

Find the surface of each wall separately by multiplying its length by its breadth in feet, add together these various surfaces, and divide by 9 to find the number of yards of plastering, and this multiplied by the cost per yard of plastering will give the cost of plastering the room.

One thousand lath will cover 70 yards of surface, and 11 lbs. of lath nails will nail them on. 8 bushels of good lime, 16 bushels of sand, and one bushel of hair will make enough good mortar to plaster 100 square yards of wall two coats. 100 lath make a bundle, and on the wall they should be set ¼ inch apart.

PAINTERS AND CALCIMINERS' WORK.

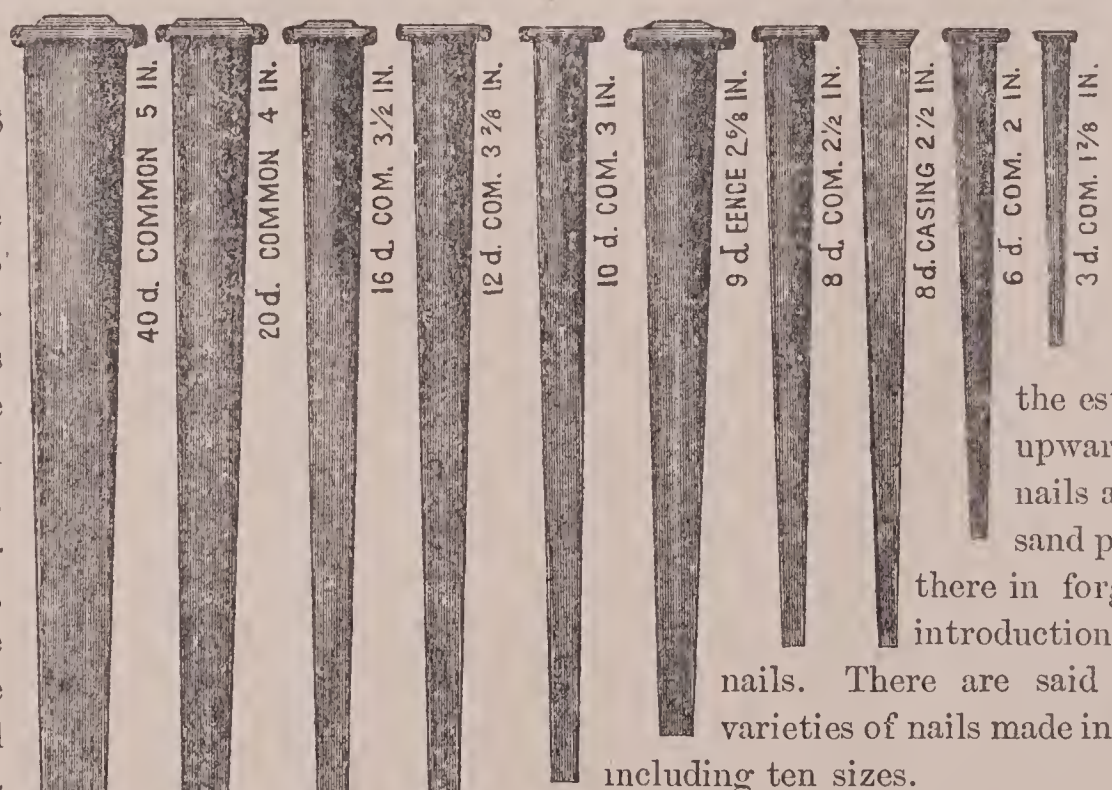
Painters' work is estimated by the square, which is 100 square feet, or a surface 10 feet long and 10 feet wide. No deductions are made for windows, and something is added for difficult cornices, balusters, etc.

Multiply the length of each surface painted by its width and point off two places from the right, this will give the number of squares, which multiplied by the price will give the cost of painting for one, two, or three coats, as the case may be.

NAILS.

BRONZE nails were used in ancient Egypt. The Tahitians, who had no idea of metal, at first planted nails in the ground, and waited for them to grow. They mistook them for shoots of some hard wood. Their tools were made of stone, shell, wood, or bone.

Nails were formerly forged from the bar by hand. As early as 1606, in England, Sir Davis Bulmer obtained letters patent for a machine for cutting nail-rods by water power. An improvement on his machine was made in 1618 by Clement Dawbeny. These machines were probably of little or no practical use. Machinery for splitting rods for nail-manufacture was first introduced in Sweden. Mr. Foley, of Stourbridge, England, during a journey, played his fiddle before the workmen at the mills in Sweden, and thus, by making himself acceptable, was allowed to observe their machinery. A factory was established in England as a result of his observations.



The first machine for nail-making was contrived by Mr. French, of Wimborne, Staffordshire, in 1790. In it, labor was saved by working the hammers by water power. In 1810 a machine was invented in the United States by which nails were cut and headed at one operation, at the rate of more than 100 a minute. As many as twenty-three patents were granted for improvements in nail-machines at the close of last century.

Nails are wrought, cut, or cast. Until a comparatively recent date, nails were made only by hand, but are now, of course, extensively made by machinery. The making of hand-made or wrought nails, usually retains the character of a domestic manufacture, and forms the employment of a class of blacksmiths, who forge them on a steel anvil. Some blacksmiths acquire great dexterity in their work as nail-makers. One man has been known to make 34,000 flooring nails in a fortnight, which would require on an average 1,030,656 strokes of the hammer.

Cast nails have long been used for the same purposes as wrought nails. Cut nails were first made in this country; a machine for making them was invented by Mr. Odin, of Massachusetts, in 1816. The machines of Reed, and Hunt, followed the last-named in 1841.

Birmingham is the great seat of nail manufacture. Some of the establishments produce upward of 40,000,000 cut nails a week. Sixty thousand persons were employed there in forging nails before the introduction of machine-made nails. There are said to be three hundred varieties of nails made in England, each variety including ten sizes.

Nails are of various sorts and named from the uses to which they are put, as clasp-nail, door-nail, fencing-nail, horseshoe-nail, screw-nail, trunk-nail, etc.

Some varieties of nails number so many to the pound. As between ours and the English mode of numbering there is much variation. According to the latter, seven pounds, eight pounds, etc., denotes that 1000 of each of those varieties would have those weights. Several kinds and sizes of nails in common use are shown in the illustration. Lengths and number of nails to the pound in several varieties are given as nearly as may be in the following table:

Common,	2-penny,	1	inch	long,	800	to pound.
"	3 "	1¼	inches	"	464	"
"	4 "	1½	"	"	296	"
"	5 "	1¾	"	"	224	"
"	6 "	2	"	"	168	"
Common,	7-penny,	2¼	inches	long,	120	to pound.

Common,	8-penny,	2½	inches	long,	88	to	pound.
"	9 "	2¾	"	"	70	"	
"	10 "	3	"	"	60	"	
"	12 "	3¼	"	"	48	"	
"	20 "	4	"	"	24	"	
"	30 "	4½	"	"	17	"	
"	40 "	5	"	"	13	"	
"	60 "	6	"	"	8	"	
Clinch,	6 "	2	"	"	95	"	
"	8 "	2½	"	"	62	"	
"	10 "	3	"	"	46	"	
"	12 "	3¼	"	"	42	"	
"	20 "	4	"	"	33	"	
"	30 "	4½	"	"	20	"	
Fence,	6 "	2	"	"	84	"	
"	8 "	2½	"	"	48	"	
"	10 "	3	"	"	30	"	
"	12 "	3¼	"	"	24	"	
"	20 "	4	"	"	16	"	
Finishing,	2 "	1	"	"	1100	"	
"	3 "	1¼	"	"	720	"	
"	4 "	1½	"	"	523	"	
"	5 "	1¾	"	"	410	"	
"	6 "	2	"	"	268	"	
"	8 "	2½	"	"	146	"	
"	10 "	3	"	"	102	"	
"	20 "	4	"	"	54	"	
Fine,	2 "	1	"	"	1000	"	
"	3 "	1¼	"	"	800	"	
"	4 "	1½	"	"	368	"	
Barrel,	— —	¾	"	"	800	"	
"	2 "	1	"	"	376	"	
"	4 "	1½	"	"	180	"	
Casing	4 "	1½	"	"	398	"	
"	6 "	2	"	"	224	"	
"	8 "	2½	"	"	128	"	
"	9 "	2¾	"	"	110	"	
"	10 "	3	"	"	91	"	
"	12 "	3¼	"	"	71	"	
"	20 "	4	"	"	40	"	
"	40 "	5	"	"	27	"	
Shingle,	5 "	1¾	"	"	178	"	
"	8 "	2½	"	"	74	"	
"	9 "	2¾	"	"	60	"	
"	10 "	3	"	"	52	"	
Brads,	6 "	2	"	"	126	"	
"	7 "	2¼	"	"	98	"	
"	9 "	2¾	"	"	65	"	
"	10 "	3	"	"	55	"	
"	12 "	3¼	"	"	40	"	
Brads,	16-penny,	3½	inches	long,	27	to	pound.
Cut Spikes	10-penny,	3	inches	long,	28	to	pound.
"	20 "	4	"	"	14½	"	
"	30 "	4½	"	"	12½	"	
"	40 "	5	"	"	9½	"	
"	50 "	5½	"	"	8	"	
"	60 "	6	"	"	6	"	

Cut Boat Spikes are of various sizes and number all the way from eighteen to three to the pound.

Common nails are used for common purposes—any purpose they may be made to serve.

Clinch nails are a variety that are capable of being made fast by bending over the point.

Fencing nails are heavy, being nearly twice the weight of common nails of similar numbers. This variety of nail is adapted for fastening on fencing-boards. A specimen of the fencing nail is shown in the illustration.

Finishing nails are specially adapted for the interior fittings of a house, such as the stairs, skirting-boards, flooring, doors, windows, etc., and are used by the joiner, as distinguished from the carpenter, whose occupation requires that rough work of great strength and durability shall be put together.

Casing nails are smooth, slender, flat and wedge-shaped; are suited to that kind of work next to finishing, as casing or framing in carpentry. Casing and finishing nails are similar in shape. An eight-penny casing nail is represented in the illustration.

A six-penny shingle nail is a cut nail for fastening shingles on a roof.

Brads are a kind of nail used in building, having no heads like other nails, as joiners' brads, flooring brads, batten brads. Spikes are large and long (six inches, more or less) having great heads. These are used in fastening down planks of a floor or bridge.

Nails are made by machinery which cut sheets of iron into strips, each strip as wide as the length of the nail to be made; this cutting is effected by a kind of enormous shears, worked by steam power. The strips are then cut up into nails. In one form of machine, the piece of iron, after being cut from the strip, is caught by a kind of clasp, and exposed to a pressure which gives it a head. Spike nails are made by machinery in a different way. A square rod of iron, of the proper thickness, is cut into lengths; and each length or piece is exposed to such powerful pressure as to squeeze it into the form of a nail; this more resembles a wrought than a cut nail. All cut nails are annealed or rendered tough by keeping them for a length of time at a very low heat, and afterward cool them very slowly.

TABLES OF WEIGHTS AND MEASURES.

LONG, OR LINEAR MEASURE.

Used to compute distances in any direction.

12	inches (in.)	make 1	foot—ft.
3	ft.	" 1	yard—yd.
5½	yd.	" 1	rod—rd.
40	rd.	" 1	furlong—fur.
8	fur.	" 1	mile—mi.

Also,

3 barley corns make 1 inch, used by shoemakers.
4 inches " 1 hand, " to measure horses.
6 feet, " 1 fathom, " depths at sea.
1.15 statute miles make 1 geographic mile, used to measure depths at sea.
3 geographic miles " 1 league.
60 geographic miles, 69½ statute " } 1 degree.
360 degrees, the circumference of the earth.

MARINERS' MEASURE.

The distance or speed which a ship travels is measured by the number of knots of the log line run off in a half minute.

6 feet	make 1	fathom.
120 fathoms	" 1	cable length.
51 feet (nearly)	" 1	knot of log line.
1 geographic mile	" 1	knot of distance at sea.

SURVEYORS' MEASURE.

7.92 inches	make 1	link—l.
25 l.	" 1	rod—rd.
4 rd. or 66 ft.	" 1	chain—ch.
10 sq. chains	" 1	acre—a.
640 a.	" 1	sq. mile—sq. mi.
36 sq. mi.	" 1	township.

CIRCULAR MEASURE.

Used to determine localities by estimating latitude and longitude, and measure difference of time. All circles, of whatever size, are supposed to be divided into the same number of parts—as quadrants, degrees, etc.

60 seconds (″)	make 1	minute—′
60 ′	" 1	degree—°
30 °	" 1	sign—S.
12 S. or 360°	" 1	circle—C

CLOTH MEASURE.

2¼	inches	make 1	nail—na.
4	na.	" 1	quarter—qr.
4	qr.	" 1	yard—yd.
5	qr.	" 1	Ell English—E.E.

SQUARE MEASURE.

Used in measuring surfaces.

144	square inches	make 1	square foot—sq. ft.
9	sq. ft.	" 1	square yard—sq. yd.
30¼	sq. yd.	" 1	square rod—sq. rd.
40	sq. rd.	" 1	rood—R.
4	sq. R.	" 1	acre—a.
640	sq. a.	" 1	square mile—sq. mi.

CUBIC MEASURE.

Used in measuring solids of all kinds.

1728	cubic inches	make 1	cubic foot—cu. ft.
27	cubic feet	" 1	cubic yard—cu. yd.
16	cubic feet	" 1	cord foot—crd. ft.
8 cord feet, or 128 cu. ft.		" 1	cord of wood—C.
2150.4	cu. in.	" 1	bushel—bu.
268.8	cu. in.	" 1	gallon—gal.

TIME MEASURE.

60	seconds (sec)	make 1	minute—min.
60	min.	" 1	hour—hr.
24	hr.	" 1	day—da.
7	da.	" 1	week—wk.
365¼	da.	" 1	year—yr.
10	yr.	" 1	decade.
10	dec. or 100 yr.	" 1	century.

LIQUID OR WINE MEASURE.

Used in measuring liquids, such as molasses, milk, and various liquids.

4	gills	make 1	pint—pt.
2	pt.	" 1	quart—qt.
4	qt.	" 1	gallon—gal.
31½	gal.	" 1	barrel—bbl.
2	bbl.	" 1	hogshead—hhd.

Also, 36 gallons make 1 barrel of ale or beer.
54 " " 1 hogshead " "
42 " " 1 tierce.
2 hogsheads " 1 pipe or but.
2 pipes " 1 tun.
231 cubic inches = 1 gallon.

DRY MEASURE.

Used in measuring grain, fruit and vegetables.

2 pints (pt.) make 1 quart—qt.
8 qt. " 1 peck—pk.
4 pk. " 1 bushel—bu.

AVOIRDUPOIS WEIGHT.

Used in weighing hay, grain, groceries, and all coarse articles.

437½ grains make 1 ounce—oz.
16 oz. " 1 pound—℔.
25 ℔. " 1 quarter—qr.
4 qr. " 1 hundred weight—cwt.
20 cwt. " 1 ton (short).
2240 ℔s. " 1 long ton.

The long ton is used in the United States custom houses and in England.

TROY WEIGHT.

For weighing gold, silver and jewels.

24 grains (gr.) make 1 pennyweight—pwt.
20 pwt. " 1 ounce—oz.
12 oz. " 1 pound—℔.

APOTHECARIES' WEIGHT.

Used by druggists in compounding medicines, although drugs are bought at wholesale by avoirdupois weight.

20 grains (gr. xx) make 1 scruple—℈
3 scruples (℈ iij) " 1 dram—ʒ
8 drams (ʒ viij) " 1 ounce—℥
12 ounces (℥ xij) " 1 pound—℔.

PAPER AND BOOKS.

Flat cap, - - -	14x17 inches.
Crown, - - - -	15x19 "
Folio, - - - -	17x22 "
Demy, - - - -	16x21 "
Medium, - - -	18x23 "
Royal, - - - -	19x24 "
Super Royal, - - -	20x28 "
Imperial, - - - -	23x31 "
Elephant, - - -	23x28 "
Book papers, - - -	28x42 "

A sheet folded in 2 leaves is called a folio.
" " " 4 " " a quarto.
" " " 8 " " an octavo.
" " " 12 " " a 12 mo.
" " " 18 " " an 18 mo.
" " " 24 " " a 24 mo.
" " " 32 " " a 32 mo.

24 sheets of paper make 1 quire.
20 quires " 1 ream.
2 reams " 1 bundle.
5 bundles " 1 bale.

UNITED STATES AND CANADA MONEY.

The money of Canada was originally the same as that of Great Britain, but was for convenience, changed to same denominations as the United States.

10 mills make 1 cent—ct. or ¢.
10 ct. " 1 dime.
10 dimes " 1 dollar—$
10 dollars " 1 eagle.

The mill is not coined but is used only in computations.

MISCELLANEOUS TABLE.

12	units	make 1 dozen.
12	dozen	" 1 gross.
12	gross	" 1 great gross.
20	things	" 1 score.
100	pounds	" 1 quintal of fish.
196	"	" 1 barrel of flour.
200	"	" 1 " pork or beef.
56	"	" 1 firkin of butter.
14	"	" 1 stone of iron or lead.
21½	"	" 1 pig.
8	pigs	" 1 fother.
3	inches	" 1 palm.
4	"	" 1 hand.
9	"	" 1 span.
18	"	" 1 cubit.
22	" (nearly)	" 1 sacred cubit.
2½	feet	" 1 military pace.
3	"	" 1 common pace.

ESTIMATED WEIGHT OF LUMBER AND OTHER ARTICLES.

Note.—From 18000 to 20000 lbs. is considered a car load in most places, each car itself also weighing about 20000 lbs.

	Weight. Lbs.	*Am't for Car Load.* Feet.
Light Lumber—Pine, Hemlock and Poplar, thoroughly seasoned, per thousand feet	3,000	6,500
" " Black Walnut, Ash, Maple and Cherry per thousand feet	4,000	5,000
Medium Lumber—Pine, Hemlock and Poplar, green, per thousand feet	4,000	5,000
" " Black Walnut, Maple, Ash and Cherry, green, per thousand feet	4,500	4,000
" " Oak, Hickory and Elm, dry, per thousand feet	4,000	5,000
Heavy Lumber—Oak, Hickory and Elm, green, per thousand feet	5,000	4,000
" " Oak, Hickory and Elm, part seasoned, per thousand feet	4,500	4,500
Hoop Poles, seasoned, (28 feet car)		4 ft. high.
" green " "		3 "
Staves and Heading, seasoned, (28 feet car)		4 "
" " green, " "		3 "
Oak Bark, green, per cord	3,500	5 cords.
" dry "	2,500	7 "
Shingles, green, per thousand	375	55 M.
" dry "	275	70 M.
Lath, per thousand	500	40 M.
Brick, common, per car load	4lbs.each.	5,000
Fire Brick, "	6 "	3,000
Lime and Coal, "		250 bu.
Coke, "		500 "
Sand, per cubic yard	3,000	6½ cu.yd.
Gravel, "	3,200	6 "
Stone, undressed, per cubic yard	4,000	5 "
" per car load		20,000 lb.
Stage Coaches	4,000	
Two-horse Carriages	3,000	
One-horse Wagons	1,500	
Single Sleighs	1,000	
Cattle	2,000	

FOREIGN AND UNITED STATES GOLD COINS.

Their weight, fineness and value as assayed at the United States mint. The weight is given in Troy ounces and decimals of the same; the fineness shows how many parts in 1000 are fine gold; the value is the intrinsic relative value, as compared with the amount of fine gold in United States coin.

COUNTRIES.	DENOMINATIONS.	Weight.	Fineness.	Value.
Australia	Pound of 1852	0.281	916.5	$5.324
"	Sovereign, 1855 and 1860	0.2565	916	4.857
Austria	Ducat	0.112	986	2.283
"	Sovereign	0.363	900	6.754
"	New Union Coin	0.357	900	6.642
Belgium	25 Franes	0.254	899	4·72
Bolivia	Doubloon	0.867	870	15.593
Brazil	Twenty Milreis	0.575	917.5	10.906
Central America.	Two Escudos	0.209	853.5	3.688
" "	Four Reals	0.027	875	0.488
Chili	Old Doubloon	0.867	870	15.593
"	Ten Pesos	0.492	900	9.154
Denmark	Ten Thalers	0.427	895	7.90
Ecuador	Four Escudos	0.433	844	7.555
England	Pound or Sovereign, new	0.2567	916.5	4.863
"	" " average	0.2562	916	4.851
Franee	Twenty Franes, new	0.2075	899	3.858
"	" " average	0.207	899	3.847
Germany, North.	Ten Thalers	0.427	895	7.90
" "	" " Prussian	0.427	903	7.971
" "	Krone (erown)	0.357	900	6.642
" South.	Ducat	0.112	986	2.282
Greece	Twenty Drachms	0.185	900	3.442
Hindostan	Mohur	0.374	916	7.082
Italy	Twenty Lire	0.207	898	3.843
Japan	Old Cobang	0.362	568	4.44
"	" "	0.289	572	3.576
"	Yen (new, assumed)	0.535	900	9.956
Mexieo	Doubloon, average	0.8675	866	15.53
"	" New	0.8675	870.5	15·611
"	Twenty Pesos (Max.)	1.086	875	19.643
"	" " (Repub.)	1.090	875	19·72
Naples	Six Ducaeti	1.245	996	5·044
Netherlands	Ten Guilders	0.215	899	3.997
New Grenada	Old Doubloon (Bogota)	0.868	870	15.611
" "	" " (Popayan)	0.867	858	15.378
" "	Ten Pesos	0.525	891.5	9.675
Peru	Old Doubloon	0.867	868	15.557
"	Twenty Sols	1.055	898	19.213
Portugal	Gold Crown	0.308	912	5.807
Prussia	New Crown (assumed)	0.357	900	6.642
Pome	2½ Scudi (new)	0.140	900	2.605
Russia	Five Rubles	0.210	916	3.976
Spain	100 Reals	0.268	896	4.964
"	80 "	0.215	869.5	3·864
Sweden	Ducat	0.111	875	2.237
"	Carolin, 10 frs	0.104	900	1.935
Tunis	25 Piastres	0.161	900	2.995
Turkey	100 "	0.231	915	4.369
Tuscany	Seguin	0.112	999	2.313
United States	Dollar	0.05375	900	1.00
" "	Quarter Eagle	0.13437	900	2.50
" "	Three Dollar	0.16125	900	3.00
" "	Half Eagle	0.26875	900	5.00
" "	Eagle	0.5375	900	10.00
" "	Double Eagle	1.075	900	20.00

FOREIGN AND UNITED STATES SILVER COINS.

As assayed at the United States mint, the basis of valuation being $1.22½ per ounce of standard fineness. Weight in Troy ounces; fineness in thousandths.

COUNTRIES.	DENOMINATIONS.	Weight.	Fineness.	Value.
Austria	Old Rix Dollar	0.902	833	$1.023
"	Old Scudo	0.835	902	1.026
"	Florin before 1858	0.451	833	.511
"	New Florin	0.397	900	.486
"	New Union Dollar	0.593	900	.731
"	Maria Theresa Dollar, 1780	0.895	838	1.021
Belgium	Five Francs	0.803	897	.98
Bolivia	New Dollar	0.801	900	.981
Brazil	Double Milreis	0.820	918.5	1.025
Canada	Twenty Cents	0.150	925	.189
"	Twenty-five Cents	0.1875	925	.236
Central America.	Dollar	0.866	850	1.002
Chili	Old Dollar	0.864	908	1.068
"	New Dollar	0.801	900.5	.982
China	Dollar (English) assumed	0.866	901	1.062
"	Ten Cents	0.087	901	.106
Denmark	Two Rigsdaler	0.927	877	1.107
England	Shilling, new	0.1825	924.5	.23
"	" average	0.178	925	.224
Franee	Five Francs, average	0.800	900	.98
"	Two Franes	0.320	835	.364
Germany, North.	Thaler before 1857	0.712	750	.727
" "	New Thaler	0.595	900	.729
" South.	Florin before 1857	0.340	900	.417
" "	New Florin, assumed	0.340	900	.417
Greece	Five Drachms	0.719	900	.881
Hindostan.	Rupee	0.374	916	.466
Japan	Itzabu	0.279	991	.376
"	New Itzabu	0.279	890	.338
"	10 Sen (new coinage)	0.804	800	.985
Mexieo	Dollar, new	0.8675	903	1.066
"	" average	0.866	901	1.062
"	Peso of Maximilian	0.861	902.5	1.055
Naples	Scudo	0.844	830	.953
Netherlands	2½ Guilders	0.804	914	1.033
Norway	Speeie Daler	0.927	877	1.107
New Grenada	Dollar of 1857	0.803	896	.98
Peru	Old Dollar	0.866	901	1.062
"	Dollar of 1858	0.766	909	.948
"	Half Dollar, 1835 and 1838	0.433	650	.383
"	Sol	0.802	900	.982
Prussia	Thaler before 1857	0.712	750	.727
"	New Thaler	0.595	900	.729
Rome	Scudo	0.864	900	1.058
Russia	Ruble	0.667	875	.794
Sardinia	Five Lire	0.800	900	.98
Spain	New Pistareen	0.166	899	.203
Sweden	Rix Dollar	0.092	750	1.115
Switzerland	Two Franes	0.323	899	.395
Tunis	Five Piasters	0.511	898.5	.625
Turkey	Twenty Piasters	0.770	830	.87
Tuscany	Florin	0.220	925	.276
United States	Dollar	0.859⅜	900	
" "	Half Dollar	0.460	900	
" "	Quarter Dollar	0.200	900	
" "	Dime	0.080	900	
" "	Half Dime	0.040	900	
" "	Three Cent	0.024	900	

RAILROAD FREIGHT. TABLE OF GROSS WEIGHTS.

The articles named are billed at actual weights, if possible, but usually at the weights in the table below when it is not convenient to weigh them.

Ale and Beer	320 lbs.	℔ bbl.	
" "	170	" ½	
" "	100	" ¼	
Apples, dried	24	" bu.	
" green	56	" "	
" "	150	" bbl.	
Barley	48	" bu.	
Beans, white	60	" "	
" eastor	46	" "	
Beef	320	" bbl.	
Bran	20	" bu.	
Brooms	40	" doz.	
Buckwheat	52	" bu.	
Cider	350	" bbl.	
Chareoal	22	" bu.	
Clover Seed	60	" "	
Corn	56	" "	
" in ear	70	" "	
" Meal	48	" "	
" "	220	" bbl.	
Eggs	200	" "	
Fish	300	" "	
Flax Seed	56	" bu.	
Flour	200	" bbl.	
Hemp Seed	44	" bu.	
Highwines	350	lbs. ℔ bbl.	
Hungarian Grass Seed	45	" bu.	
Lime	200	" bbl.	
Malt	38	" bu.	
Millet	45	" "	
Nails	108	" keg.	
Oats	32	" bu.	
Oil	400	" bbl.	
Onions	57	" bu.	
Peaches, dried	33	" "	
Pork	320	" bbl.	
Potatoes, eommon	150	" "	
" "	60	" bu.	
" sweet	55	" "	
Rye	56	" "	
Salt, fine	56	" "	
" "	300	" bbl.	
" coarse	250	" "	
" in sacks	200	" sack.	
Timothy Seed	45	" bu.	
Turnips	55	" "	
Vinegar	350	" bbl.	
Wheat	60	" bu.	
Whisky	350	" bbl.	
One ton weight is	2000 lbs.		

TABLE OF POUNDS IN A BUSHEL.

The following table shows the weight of a bushel, as prescribed by statute, in the several states named:

ARTICLES.	California.	Connecticut.	Illinois.	Indiana.	Iowa.	Kentucky.	Louisiana.	Maine.	Massachusetts.	Michigan.	Minnesota.	Missouri.	N. Carolina.	N. Hampshire.	New Jersey.	New York.	Ohio.	Oregon.	Pennsylvania	Rhode Island.	Vermont.	Wisconsin.	Wash. Territory.
Barley	50	..	48	48	48	48	32	..	46	48	48	48	..	43	48	48	48	46	47	..	46	48	45
Beans	..	..	60	60	60	60	..	..	..	..	..	60	..	..	..	62	..	..	..	..	..	..	..
Bituminous Coal	..	..	80	70	80	80	..	..	..	..	..	80	..	..	..	..	..	..	76	..	..	..	..
Blue Grass Seed	..	..	14	14	14	14	..	..	..	..	..	14	..	..	..	..	..	..	..	..	..	..	..
Buckwheat	40	45	40	50	52	52	..	..	46	42	42	52	..	50	50	48	..	42	48	..	46	42	42
Castor Beans	..	..	46	46	46	..	..	..	..	..	..	46	..	..	..	..	..	..	..	..	..	..	..
Clover Seed	.	.	60	60	60	60	..	..	..	60	60	60	..	..	64	60	60	60	..	..	..	66	60
Dried Apples	..	..	24	25	24	..	..	..	..	28	28	24	..	..	..	..	..	28	..	..	..	28	28
Dried Peaches	..	..	33	33	33	..	..	..	..	28	28	33	..	..	..	..	..	28	..	..	..	28	28
Flax Seed	..	..	56	56	56	56	..	..	..	..	..	56	..	..	55	55	56	..	..	..	..	56	..
Hemp seed	.	..	44	44	44	44	..	..	..	..	..	44	..	..	..	..	..	..	..	..	..	..	..
Indian Corn	52	56	52	56	56	56	56	.	56	56	56	52	..	54	56	58	56	56	56	..	56	56	56
Indian Corn in ear	..	..	76	68	68	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Indian Corn Meal	.	..	48	50	..	50	..	50	50	..	..	..	..	..	..	..	..	..	..	50	..	..	..
Oats	32	28	32	32	35	33⅓	32	30	30	32	32	35	30	..	30	32	32	34	32	..	32	32	36
Onions	.	..	57	48	57	57	..	.	52	..	..	57	..	..	..	..	..	..	..	50	..	..	50
Potatoes	..	60	60	60	60	60	..	60	..	..	..	60	60	..	60	60	..	60	..	60	60	60	60
Rye	54	56	54	56	56	56	32	..	56	56	56	56	..	..	56	56	56	56	56	..	56	56	54
Rye Meal	..	..	..	..	..	..	..	50	50	..	..	..	..	..	..	..	..	..	..	50	..	..	..
Salt	..	..	..	50	50	50	..	..	..	..	..	50	..	..	..	56	..	..	..	..	..	98	..
Timothy Seed	..	..	45	45	45	45	..	.	..	..	..	45	..	..	..	44	..	..	..	..	..	..	..
Wheat	60	56	60	60	60	60	36	.	60	60	60	60	..	60	60	60	60	60	60	..	60	60	60
Wheat Bran	..	..	20	..	20	20	.	.	..	..	..	20	..	..	..	..	..	..	..	..	..	..	..

NEW YORK AND BROOKLYN

Suspension Bridge.

Its Extent as Compared With the Other Great Bridges Throughout the World.

During the present century the science of engineering has developed in a remarkable degree, and its accomplishments are of a more utilitarian sort.

In the region of civil engineering that includes the planning and construction of public works of a special kind, as that relating to bridges, the results of combined and well-directed action are particularly valuable.

The extreme supports of a bridge, whether consisting of one or of many arches, are called abutments or butments. The parts upright between these, if any are called piers or pillars. The foundations upon which these rest, if widened out so as to throw off the force of the stream, are called cutwaters, and the fences on the sides of the roadway are called parapets.

A greater extent of span can be obtained in suspension and tubular bridges, and those constructed with cast-iron girders, than in bridges of masonry or brick.

Long span bridges are trussed, arched, tubular, and suspension. The celebrated new London bridge that crosses the Thames is arched, while the East river span, by means of which the inhabitants of Brooklyn and New York are more closely connected, is a suspension bridge of unequaled length and proportions.

The extent of the New York and Brooklyn bridge exceeds the London bridge in that its length of river span is 1,595½ feet, while the total length is 5,989 feet. To those who have never seen it, the following data will convey something of an idea of the magnitude of the work:

Construction commenced January 2, 1870; cost about $15,000,000. Thrown open to the public, 24th May, 1883. Size of New York caisson, 172x102 feet; size of Brooklyn caisson, 168x102 feet; timber and iron in caissons, 5,253 cubic yards; concrete in well holes, chambers, etc., 2,669 cubic feet. Weight of New York caisson, about 7,000 ton; weight of concrete filling, 8,000 tons. New York tower contains 46,945 cubic yards of masonry. Brooklyn tower contains 38,214 cubic yards masonry. Length of each river span, 1,595 feet six inches; length of each land span, 930 feet, 1,860 feet; length of Brooklyn approach, 971 feet; length of New York approach, 1,562½ feet. Total length of termini, 5,989 feet; width of bridge, 85 feet. Number of cables, 4; diameter of each cable, 15¾ inches. First wire was run out May 29, 1871. Cable making really commenced June 11, 1877. Length of each single wire in cables, 3,578 feet 6 inches. Ultimate strength of each cable, 12,200 tons. Weight of wire, 12 feet per pound, Each cable contains 5,296 parallel (not twisted) galvanized steel, oil-coated wires, closely wrapped, to a solid cylinder 15¾ inches in diameter. Depth of tower foundation below high water, Brooklyn, 45 feet. Depth of tower foundation below high water, New York, 78 feet. Size of towers at high water line, 140x50 feet; size of towers at roof course, 135x53 feet. Total hight of towers above high water, 278 feet. Clear hight of bridge in center of river span above high water at 90° F., 135 feet. Hight of floors at tower above high water, 119 feet 3 inches. Grade of roadway, 3¾ ft. in 100 feet. Hight of towers above roadway, 159 feet. Size of anchorages at base, 129x119 feet; size of anchorages at top, 117x104 feet. Hight of anchorages, 89 feet front, 85 feet rear. Weight of each anchor plate, 23 tons. Ten streets in New York and six in Brooklyn will be crossed with iron girders at high elevations, to clear obstructions. Engineer: W. A. Roebling.

LONDON BRIDGE.

The new London bridge is set down in British prints as by far the most superb work of its class in the world, yet it is eclipsed in extent by such American works as those at Niagara Falls, at St. Louis, and particularly the span across East river.

Briefly, the new London bridge, a work of granite, is 928 feet long between the abutments, and consists of five semi-elliptical arches, the center 152 feet, while the next pair and the abutment arches are 140 and 130 feet respectively. The passage is fifty-three feet, or footways nine each, and thirty-five for carriages. It was commenced in 1824 and completed in seven years.

FORM OF BRIDGES.

With regard to the form of the arch to be employed in bridges, an elliptical or segmental arch is most elegant in appearance, particularly the latter. In segmental arches the lateral thrust on the abutments is greater than in any other form; but as the voussoirs or wedge-like stones forming an arch on this construc-

tion can all be cut from the same mold, as well as those of the semicircular arch, they can be erected at less expense than an elliptical arch.

The following bridges in various parts of Great Britain and Ireland afford good examples of such constructions, with elliptical, semicircular, and segmental arches. Elliptical: London bridge, Blackfrair's bridge, Waterloo bridge, and Limerick bridge. Semicircular: Stockport bridge, the Royal Border bridge, Berwick, and the Dee, Lockwood and Tyne viaducts. Segmental: Chester, Coldstream, Glasgow, Tewksbury, and Vauxhall bridges, with old Rochester bridge, and the Vale Royal viaduct.

ARCHED.

Of arched bridges, Neuilly (over Seine) is more than 640 feet long, five spans, the longest of which is 128 feet; St. Louis, 1,509 feet long, three spans, the centre one being 515 feet, and the other two each 502 feet in length; its cost being $9,000,000. Southwark bridge, London, next to new London, in size, is 718 feet between the abutments, and consists of three cast-iron arches, each forming a segment of a very large circle; the span of the center one being 250 feet, and the others 210 feet each; they are supported by granite piers.

TUBULAR.

Victoria railway bridge over the St. Lawrence at Montreal, is constructed after the plan of the Britannia tubular bridge across the Menai straits. The former is 10,284 feet in length, having twenty-five spans, the longest one 330 feet; it contains 10,500 tons of iron, and 3,000,000 cubic feet of masonry. The spans are great tubes of wrought iron. It was built at a cost of $5,000,000. The Menai bridge is 1,600 feet long, thirty feet wide, and 100 feet above the water. The weight suspended is 343 tons, and the power 2,016 tons.

SUSPENSION.

The new Niagara Suspension bridge, for carriages, one-eighth of a mile below the American cataract, was opened to the public 4th January, 1869, and was, until the construction of the East river bridge, the longest suspension bridge in the world, its roadway being 1,300 feet in length. Its cables are 1,800 feet in length. It is 1,190 feet from cliff to cliff, 1,268 from tower to tower, which latter are 100 feet high, and it spans the mighty chasm through which rolls its floods toward Lake Ontario, 190 feet above the water. Cost of the structure, $175,000.

The railway suspension bridge, over Niagara river, is two miles below the falls. It forms a single span of 821 feet in length between the towers, and consists of two floors; the upper or railway floor, being eighteen feet above the lower or carriage way. These floors are connected at the sides by open truss work, so as to form, as it were, an immense car, 800 feet long, 24 feet wide, and eighteen feet high—all suspended by wire ropes from four cables of about ten inches in diameter each. The elevation of the railroad track above the water is 245 feet; there are 14,500 wires employed in the cables, and their ultimate strength is 12,000 tons. The total weight of the suspension bridge is 800 tons.

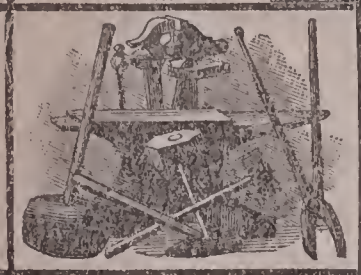
There are two suspension bridges in Friberg, Switzerland, one remarkable for its great length, the other for its extreme beauty. The latter connects the tops of two mountains, swinging over a frightful gulf that makes one dizzy to look down into. It stretches across nearly 300 feet in the heavens, from summit to summit. It looks like a spider's web flung across a chasm; its delicate tracery showing clear against the sky. The former is 905 feet long, 174 high.

OTHER BRIDGES.

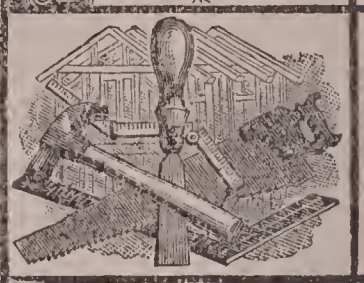
A wonderful bridge, that of Lagang, over an arm of the sea in China, is built in a similar way as the bridges of Babylon, but entirely of stone. Its length is said to be 26,000 Paris feet, and comprises 3,000 arches, or rather openings of pillars. These are not overspread with arches, but there are placed above them large slabs of stone, which form the roadway, 70 feet broad. The distance of the pillars is nearly 74½ feet, the latter being 70 feet high, and 5 feet broad, and strengthened with stone facings of the form of triangular prisms, which extend over the whole hight of the pillars up to the transversed slabs. The latter (of course more than 70 feet long), extend in breadth to 15 feet, and have nine feet in thickness. The parapet is a balustrade and every pillar supports a pedestal on which is placed a lion 21 feet long, and made of one block of marble.

The Verrugas viaduct on the Lima and Oroya railroad, in the Andes of Peru, is the highest bridge in the world, being 12,000 feet above the level of the sea. It consists of four deck-spans, or trusses, resting on three piers built of wrought-iron columns. Total length 575 feet.

At Kieff, in Russia, is a beautiful chain bridge over the river Dneiper. It has seven spans, and a total length of 2,562 feet.



VOCABULARY
OF
Mechanical and Scientific Terms.



NAMES AND DEFINITIONS IN ARCHITECTURE AND BUILDING, CARPENTRY AND JOINERY, METALLURGY, NAUTICAL AFFAIRS, AND PROCESSES OF ART AND INDUSTRY.

ABOUT-SLEDGE. A hammer of the largest size used by smiths

Accelerate. To quicken. Accelerated motion is that which continually increases in velocity, and accelerating force is that which produces accelerated motion.

Addendum Circle. The space between the pitch line of a gear and the circle touching the ends of the teeth.

Adz. A carpenter's tool for chipping

Aerostat. A machine or balloon holding weights in the air.

Air-brake. An appliance for stopping the motion of a car wheel by the use of compressed air.

Air-chamber. A hollow space containing air to serve as a spring for equalizing the flow of liquid in hydraulic machines.

Air-drain. An opening between the outward walls of a building as a guard against dampness.

Air-engine. See Engine.

Air-escape. A device for letting out air from water pipes.

Air-fountain. A device for producing a jet of water by compressed air.

Air-gun. A contrivance like a musket, wherewith to discharge bullets by means of compressed air.

Air-jacket. A jacket with air-tight cells, used to keep the body of a person from sinking.

Air-machine. A device for ventilating mines.

Air-pipe. A pipe to draw foul air from close places.

Air-pump. A pump for extracting the air from a closed vessel.

Air-shaft. Holes made from the surface to the adits or horizontal passages, to furnish fresh air to mines.

Air-trap. A device for the escape of foul air from sewers, etc.

Alarm-gauge. A part of a steam-engine for indicating when the pressure of steam is too high, or the water in the boiler too low.

Alloy. A natural or artificial mixture of two or more metals. The alloys of copper and tin are of extreme importance in the arts on account of their great toughness, their hardness, and their fusibility. The alloys of silver and tin are very hard, as a small quantity of tin overcomes the ductility of the silver. When mercury is one of the metals, the compound is known as amalgam.

Amalgam. See Alloy

Anchor. An iron weight for holding a vessel at rest in water.

Andiron. A support for wood in a fireplace.

Android. A mechanical contrivance in the form of a man; an automaton.

Anemometer. A machine for measuring the wind. "Anemoscope," a wind-vane or weather-cock.

Angle-iron. An iron bar made into the form of an angle for strengthening the corners of safes, boilers, etc. Called, also, angle-bar.

Anvil. A thick iron block, frequently with a steel face, upon which metals are hammered and shaped.

Aquarium. A vessel containing water, either salt or fresh, in which living specimens of aquatic animals and plants are maintained in a healthy state.

Aqueduct. A channel with a gentle inclination, for the transmission of water from one place to another.

Archimedean Screw, or Spiral Pump. So-called for Archimedes, its inventor. It consists of a pipe twisted spirally round a cylinder, which, when at work, is supported in an inclined position. The lower end of the pipe is immersed in water, and when the cylinder is made to revolve on its own axis, the water is raised from bend to bend in the spiral pipe until it flows out at the top.

Architecture. The science of building or construction, and is of various kinds; as, civil, military, naval, and ecclesiastical. The walls of antiquity are called Cyclopean, and date back about 1,000 years before Christ. The Greeks improved upon the architecture of the Assyrians and Egyptians. Greek architecture is divided into the Doric, Ionic, and Corinthian. Roman architecture was borrowed from the Greek. The Byzantine, Saracenic, Gothic, and Renaissance architecture followed. Of the first-named is the church of St. Sophia at Constantinople; the second or Saracenic style is used in Mohammedan mosques; Gothic was characteristic of western Europe during the middle ages, and gave way to a mixed style called Elizabethan; Renaissance denotes a revival of of the classical style of architecture, which had its origin in Italy, where the Gothic style never had a strong footing. Every country had its peculiar Renaissance, although each was derived from that of Italy. The Renaissance in general was founded upon the Roman antique; not upon the style of the temples, but upon that of their triumphal arches, baths, and other edifices. The Renaissance is considered by French writers to have risen to its highest point of excellence under Philibert Delorme, in the sixteenth century. In the present century there has been a reaction in favor of the Gothic style of architecture, which, although admirably suited for ecclesiastical purposes, is not well adapted for the construction of public offices or private dwelling-houses, as the comfort of the interior is too often disregarded for the sake of the symmetry of the exterior. The architecture of this day, however, is quite varied and picturesque, and partakes of a sort of new order, characteristic of the age of railways, and other important improvements of these times. See Composite, and Etruscan Architecture; also, Ionic order, and Keystone.

Arcograph. A device for drawing a circular arc or circle without a central point, as in the case of an instrument with a point and pencil.

Armature. A piece of soft iron affixed to the extremities or poles of a magnet, in order that its magnetic power may be preserved. In architecture, iron bars or framing for consolidation and support of structures.

Armstrong Gun. A light weapon of great power and precision, made of pieces of the very best wrought iron. This rifled gun was constructed by Sir William George Armstrong, and was adopted by the English government and first used in the war with China, in 1860.

Arquebuse. An old species of fire-arm.

Artificer (or Artisan). One who makes according to art; a skilful worker and contriver; one trained in the use of tools in some mechanic art or trade. "Artist," an artisan.

Ash-furnace (or Oven). Used in making glass.

Ashlar (or Ashler). A term applied to stones, whether rough or dressed.

Asphalt (or Asphaltum). A bituminous substance, found in the tertiary strata in different parts of the earth, evidently produced from coal by the action of heat. It is much used as a

pavement when mixed with certain proportions of lime, gravel, or pounded stone. Coal-tar is artificial asphalt.

Assaying. A term generally applied to the determination of gold or silver in alloys of these metals. "Button," a round mass of metal remaining in the crucible after melting.

Astragal. See Base.

Atlantes. See Caryatides.

Auger. An instrument for boring holes by carpenters, wheelwrights, shipwrights, and others, "Anger-bit," a bit with a cutting edge like that of an auger.

Automaton. A machine so constructed as to move in imitation of the actions of living animals.

Awl. A pointed instrument used by shoemakers, saddlers, and cabinet-makers—called, also, brad-awl, saddler's awl, shoemaker's awl.

Ax (or Axe). An iron instrument, generally used with both hands in hewing timber and chopping wood. The hatchet is a smaller form of the ax, and is used with one hand. The broad-ax is a carpenter's tool made heavier than the chopping-ax, with broader and thinner blade and shorter handle. The mattock is a kind of pick-ax. See Pick, and Pole-ax, under the head of Pole.

Axis. A term common to all the sciences. In physics, the word is used in many different senses. The axis of rotation is the line around which a body turns when revolving. The term is applied to any line about which objects are symmetrical, around which they turn, or to which they have some common relation.

Axle-box. A box in which the short, cylindrical portion of a shaft bears and moves, particularly a railway axle; a journal box. "Axle-guard," the part of a railway truck which rests on the top of the journal-box, and holds it in place.

Axle-tree. A piece of timber, or bar of iron, fitted for insertion in the hubs or naves of wheels, on which the wheels turn.

Babbitt-metal. A soft alloy of copper, zinc and tin, used for bearings or journals, to lessen friction, so-called after its inventor.

Bagpipe. A wind instrument of high antiquity, in use with the Hebrews and Greeks. Generally used in Scotland.

Balance. An instrument for determining the relative weights of bodies. There are several varieties. In horology, a small wheel in a watch or time-piece which governs the movement.

Balance-knife. A table-knife which rests on the handle, leaving the blade free and not touching the cloth.

Balcony. A projection in front of the windows of a house, supported on brackets of wood or stone; the box of a theater. "Baldachin," a tent-like covering or canopy, of wood, stone, or metal, either supported on columns or suspended from above, and placed over doorways, statues, altars, thrones, etc. "Balustrade," a row of balusters surmounted by a cornice or handrail, used to give a finished appearance to the tops of buildings, or for the inclosure of stairs, balconies, etc. "Colonnade," a range of pillars extending round a building.

Ball-cock. An appliance which admits of water running into a cistern, but shuts it off by means of a floating ball, when the cistern is full.

Balloon. A large globe or pear-shaped bag, made of paper or varnished silk, and filled with rarefied air or hydrogen gas, so as to rise and float in the atmosphere.

Ball-valve. A ball, fitted into a circular cup which has a hole at the bottom.

Balustrade. See Balcony.

Band. A broad flat molding projecting a little beyond the surface of the building or column to which it is applied. The band of a column is sometimes molded in various forms, and is then called a shaft ring. In mechanics, a belt passing over two pulleys, and communicating motion.

Banding-plane. An instrument or tool used for cutting out grooves and inlaying strings and bands in straight and circular work.

Bandore. A musical instrument of three strings, similar to a guitar. "Banjo," an instrument of five strings, having a head and neck like the guitar, and its body like a tamborine. "Tamborine," a small, shallow drum, with only one skin, played on with the hands, and having bells at the sides.

Barbacan. A watch-tower placed before or over the outer gate of a castle yard, forming an advanced work to protect the castle, etc.

Barge. See Vessel.

Bar-iron. Iron in long pieces.

Barium. A white, slightly malleable metal, the metallic base of the alkaline earth baryta.

Bark. See Vessel.

Barker's Mill. See Turbine.

Barometer. An instrument for measuring the weight or pressure of the atmosphere.

Barrow. See Carriage.

Bar-shoe. A horse-shoe having a bar across the usual opening at the heel, for the protection of a tender frog.

Bar-shot. A double-headed shot consisting of a bar with a ball at each end.

Bartizan. A small round turret, with an arrow-slit or very narrow window, generally projecting from the angle of a square tower, on the corner of a gable of a building, and supported on a corbel or bracket.

Base. That part of a column on which the shaft is placed, consisting generally, in the five orders of architecture, of a square plinth and moldings, formed of tori, fillets, cavettos, and astragals, in various combinations, between the plinth and the bottom of the shaft. "Astragal," a molding in the capital of the Ionic column. "Cavetto," a hollowed molding. "Fillet," a little square piece or ornament, used generally over a greater molding. "Baston," a round molding used in the base of a column, called also a tore or torus. "Entablature," that part of a column which is over the capital, comprehending the architrave, frieze, and cornice.

Base-line. A line taken as a base of operations, as in surveying, in military operations, etc. "Base-plate," the bed-plate of heavy machinery. "Base-ring," a projecting ring or band around the base of anything; as, the base-ring of a great gun.

Bass Viol. A large instrument, violin-like in form, used for playing the bass or gravest part. It has four strings.

Battery. A term usually applied to a combination of several electrical jars, which may be charged and discharged as one great jar. "Relay," a magnet that receives the circuit current, and develops the power of a local battery, called also relay battery.

Bay-window. A window forming a bay or recess in a room. It may project outward from the wall either in a rectangular, polygonal, or semi-circular form.

Beam. Either a large piece of timber or metal, used for sustaining heavy weight in buildings. "Beam-engine," a steam-engine which communicates motion by the top of the piston-rod, being connected with a beam or lever moving on a central pivot, the other end of the beam being in similar connection with the crank of the driving-wheel. In the direct-action engine no beam is used, the piston working the crank.

Bed-piece. The main piece or framing of a bed. "Bed-plate," the foundation plate of an engine or other machinery.

Beetle. A heavy mallet or hammer, made of wood, used in driving wedges, beating pavements, etc.

Beetling Machine. A machine or improvement for giving to woven fabrics a glossy finish similar to that which is now produced by the ordinary stamps in the machines called beetles.

Bell. A metallic instrument which gives out a musical sound caused directly by its own vibrations. "Bell-crank," a triangular crank used to ring a bell. "Bell-metal," an alloy of eighty parts of copper and twenty parts of tin.

Bellows. A machine for propelling air forcibly through a tube.

Belly-brace. A cross brace, fixed to the boiler, between the frames of a locomotive engine.

Belt. A band of leather, prepared India rubber, or other flexible substance, passing around two wheels, for the purpose of communicating motion to machinery.

Bessemer's Process. (For refining iron.) A process for converting pig-iron (iron in the rough, as it comes from the furnace) more rapidly into malleable iron and steel.

Bevel. A term used by builders to express a surface sloping from another, at an angle greater or less than a right angle. In machinery, cog-wheels, with beveled edges, or *beveled gear*, as they are termed, are used to transfer the motive power from one direction to another.

Bevel-gear. Cog-wheels whose teeth are bevelled, so that two wheels work together at right angles.

Bicycle. Within a few years this means of locomotion has been wonderfully improved and its use has spread phenomenally. (Two wheels, worked by foot pedals.)

Bilge. The bottom floor of a ship, or the breadth of the part she rests on when aground. Also, the protuberant part of a cask.

Bismuth. A metal of a greyish-white color, with a strong characteristic tinge of red. It is hard, brittle, and but slightly malleable. The peculiar property it possesses of expanding as it cools, renders its alloys of great use to the typefounder and die-sinker.

Bit. A small tool, of various sizes, for boring, and turned by means of a brace.

Bitumen. Mineral pitch, closely allied in its properties to coal-tar, which is produced by the destructive distillation of coal. See Asphalt.

Black Lead. The common commercial name for graphite, or plumbago, given to that substance from its metallic leaden-gray luster. It is, however, nearly pure carbon, and contains no lead.

Blacksmith. A smith who works in iron, and makes and repairs iron utensils.

Blanchard Lathe. A lathe for turning forms, such as shoe-lasts or gun-stocks. So named after the inventor.

Blast-furnace. A furnace used in metallurgical operations, in which the combustion of the fuel is increased to an enormous extent by a blast blown from a bellows, or by means of fans. A smith's forge is a blast-furnace on a small scale.

Blast-hole. A hole in the bottom of a pump, through which water enters. "Blast-pipe," the exhaust pipe of a steam-engine, or any pipe so constructed as to cause a quick discharge of steam or air into the outer atmosphere.

Block. An adaptation of the principle of the pulley, by means of blocks, used in the rigging of ships.

Block-tin. Tin, as it comes from the foundry. See Tin.

Bloom. A mass of iron that has undergone the first hammering, called the blomary. After this process it requires many more hammerings or rollings to make it suitable for the use of the smith.

Blower. A contrivance, of which there are various kinds, for producing and maintaining a strong current of air for increasing combustion in metallurgical and other processes, requiring intense heat. "Blowpipe," an instrument used by workers in metal for soldering on a small scale. It is called a mouth blow-pipe when used with the mouth.

Board. Pasteboard, or paper made thick and stiff like a board for book-covers. Books are said to be boarded when bound in cloth, half-bound when the back and corners are in leather, and whole-bound when nothing but leather is used. See *Book-binding*.

Bobbin. A small wooden pin, with a head, to wind thread on, used in making lace, etc.

Bodkin. A small pointed tool, used by printers and other artists for various purposes. Also, a large kind of needle, used by the women of antiquity for the same purposes as they now are, and also in fastening the hair.

Boiler. A strong vessel, usually made of wrought iron plates, riveted together, in which steam is generated for driving engines, etc.

Bolt. A strong pin, of iron or other material, for holding parts together. A bolt with an eye at its head and ring attached is called a ring-bolt.

Bond. A term applied to a certain method of laying bricks, and to timbers built into or attached to the walls of a house for various purposes. In bricklaying, care must be taken that the bricks are well bonded, that is, that the successive layers of bricks may be so placed that no joint in any layer shall come immediately over another joint in the layer below it. "Bond-stones," so-called when they are introduced longitudinally into a wall built of small rough stones or rubble-work. "Bond-heart," a term applied when one stone is placed in the center of a thick wall, over the joint formed by two others, the outer faces of which appear opposite to each other on either side of the wall.

Bookbinding. The number of operations is three: Preparing, binding, and finishing. The sheets as printed are first gathered—placed in their order of pagination—folded into four, eight, or twelve leaves, as the case may be; they are then stitched and sewn to strings or bands placed at the back of the volume. A saw-cut is, in some instances, made to receive the string, otherwise the string is left to form a rib, which is used as an element of ornament in finishing the book. The sheets being all sewn together, the back edges are glued together by brushing them lightly with thin glue. The strings are cut off within half an inch of the volume, and the back is rounded, either by hand or by means of machinery. A groove is formed by pressure against the back edge to receive the board of the cover. The top, bottom, and front edges are then cut level, and the boards are fixed to the volume by the ends of the strings being passed through small holes and glued firmly to the inside. The book is then ornamented with gilding, inlaying of different-colored leather, or blind tooling, *i. e.*, plain stamping by heated stamps or dies, and the edges are left plain, or gilt, or sprinkled. See Board.

Boots, shoes, and other coverings for the feet, have been made of different substances, and in different forms, from very remote times. A boot is usually made of leather, and the top extends nearly to the knee, whilst a shoe extends only above the ankle. A sandal consists of a sole strapped to the foot, with an enclosure at the heel and sometimes at the toe. "Boot-crimp," a frame or last, used by boot-makers for outlining and shaping the body of a boot. "Boot-last," an instrument to stretch and widen the leg of a boot. "Last," a mold or piece of wood resembling in form the human foot, on which shoes are formed.

Bore. The cylindrical cavity of any weapon used for projecting shot, shells, bullets, or any missiles of a similar nature. The operation of boring cannon and gun-barrels is one requiring great care and nicety, and is effected by the rapid revolution of a steel tool called a cutter, attached to a shaft which is turned by machinery. "Boring-machine," a machine with a very hard and sharp steel tool, which works at the end of a long bar, somewhat after the manner of a centerbit.

Bow. One of the oldest of weapons. In maritime affairs, that portion of a ship's side which forms an arch toward the stem. In architecture, any portion of a building that projects from a straight wall. "Bow-compasses," a small pair of compasses made with a bow-pen for describing circles with ink. "Bow-pen," a metallic ruling-pen. "Bow-saw," a saw with a narrow blade, used for cutting curved forms from wood.

Bracket. A term applied to any projection, plain or ornamental, suspended against, or fastened to a wall, for the support of a clock, statue, or other things.

Brad. A kind of nail, with a slight projection at the top on one side, in lieu of a head.

Brake. A block of wood applied by lever or screw pressure to the circumference of a wheel, to slacken or arrest the moving power of the machine, by the production of a large amount of friction.

Bramah Lock. A lock named after its inventor, and for a long time was considered incapable of being picked. "Bramah press," a hydrostatic machine of great power, invented by the Messrs. Bramah.

Brass. A compound metal or alloy containing zinc and copper in varying proportions, according to the purposes for which it is to be used; the general composition is, however, two-thirds copper and one-third zinc. "Brass-foil," brass made into thin sheets by pounding.

Braze. To solder or join two pieces of iron together by means of thin plates of brass melted between the pieces that are to be united.

Breakwater. A barrier or artificial bank of stone, so placed as to break the force of the sea, before the entrance into a roadstead or harbor.

Breast. A bush connected with a small shaft, small axle or axis. "Breast-beam," the front cross-beam of a locomotive frame. "Breasting," the curved space in which a breast-wheel turns. It forms a quarter of a circle, and adapted to prevent the waste of water. "Breast-rail," the upper rail of a balcony, etc. "Breast-wheel," a variety of water-wheel, which may be divided into two classes, termed high and low. In the former case, the wheel is moved by the weight of the water, which it receives a little above the height of its axis. In the latter case, the wheel is moved by the impulse of the water, which it receives a little below the level of its axis.

Breech. In naval architecture, the outer angle of knee-timber. "Breech-loading," a term applied to the method of making heavy pieces of ordnance and field-pieces, as well as rifles and fowling-pieces, with a movable breech, to admit of the charge being inserted at the breech end of the gun instead of the muzzle. "Breech-pin" or screw, a strong plug screwed in at the breech of a fire-arm. "Breech-sight," an instrument used for pointing a cannon or other fire-arm.

Bressummer. Any large beam used to support a superincumbent mass of masonry, such as the beam placed over a shop-window to receive the weight of the front of the building that rises over it. Called, also, brest-summer.

Brett. A long four-wheeled pleasure vehicle.

Brevier. A small body or reading type, in size between bourgeois and minion, the last being the smallest of the three kinds here mentioned.

Brewing. The art of extracting a saccharine solution from grain, and afterward partially converting the sugar formed into alcohol. Any of the cereals, wheat, beans, peas, etc., may be used in brewing, but barley is the best for the manufacture of beer. Malt signifies any grain which has become sweet to the taste on account of the commencement of germination; as, barley, from which ale, beer, and porter are brewed, all of which are called malt liquors. Barley steeped in water for three or four days becomes malt, when it is taken out and allowed to sprout or germinate. It is then dried in a kiln and treated with boiling water, in order to form wort. Nearly all seeds contain a large quantity of starch, and when they begin to germinate, a peculiar nitrogenous substance called diastase is formed. This product, acting as a ferment, converts the starch into sugar. This process is called malting, and the subsequent partial conversion of the sugar into alcohol is called brewing. The two processes are intimately connected. In brewing, the malt undergoes six processes: The grinding; the mashing, or infusing with hot water; the boiling of the worts with hops; the cooling; the fermenting, and the clearing, storing, etc.

Bricks. The material used in making bricks is clay, which is worked into a plastic state by kneading, and then molded into a rectangular form, nine inches long, four and one-half inches wide, and very nearly three inches thick. These pieces are afterward dried, and then hardened by baking in a kiln or in stacks. "Brick-trowel," a mason's tool for spreading mortar. "Brickwork," the thickness of walls of houses built of brick is regulated by the length of the brick, which is nine inches. Walls are made half a brick, a brick, a brick and a half, etc., in thickness. In houses usually the outer walls are from one brick to two in thickness, and the partition walls only a half a brick thick. In public buildings, and walls in which great strength is required, they are sometimes more than four brick thick; but it is considered good substantial work when they are made of the thickness of three bricks well bonded together. (See Bond.) A layer of bricks is called a course; when laid side facing outward, and lengthwise in the course, they are termed stretchers; and hence, stretching-course; endwise, they are headers, or heading-course. See Plinth.

Bridge. A structure of wood, stone, or iron, thrown across a river, or any water-channel. Bridges may be classed as fixed or movable; among the former are the ordinary bridge, the suspension bridge, the tubular bridge, the frame bridge, the lattice bridge, and the skew bridge; among the latter, are the floating bridge, flying bridge, draw-bridge, and swing-bridge. "Bridge-head," a fortification intended for the defense of a bridge. Military bridges include the pontoon bridge, a bridge of boats, rope-bridge, boat-and-rope bridge, trestle bridge, raft bridge, and pile-and-spar bridge.

Brig. See Vessel.

Brilliant. A diamond of the finest cut: also, the finest body type, used in the art of printing.

Broad-ax. See Ax.

Bronze. An alloy of copper and tin, to which are sometimes added small portions of zinc and lead.

Brush-wheel. One of the wheels which in light machinery turn each other without teeth, but with or without bristles or brushes fixed to their circumference.

Buckboard. See Carriage.

Bucking. The process of soaking cloth in lye for bleaching. In mining, a term applied to crushing ore by hand on a plate called a bucking-plate, by means of a flat-headed hammer. "Bucking-kier," a large round boiler, or kier, used in bleaching. A washing-block is called a bucking-stool.

Buffer. A rod with an enlarged end attached to a spiral spring of great strength, fixed to the striking parts of locomotives and railway carriages, in order to diminish or prevent shocks arising from any sudden movement or stoppage.

Burin. An engraver's tool for cutting lines on steel, copper, or zinc plate in making an engraving.

Burnisher. A tool made of agate, steel, or some very hard highly-polished material, and used by silversmiths, bookbinders, and others, to give smoothness and luster to rough surfaces.

Bush. A perforated piece of metal fixed in certain parts of machinery, to receive the wear of pivots, bearings, and the like, as in the hub of a wheel, etc. In larger machines, a similar piece is called a box. "Bush-harrow," an instrument of husbandry for harrowing grass lands, and covering grass or clover seeds; bushes are inwoven in it, hence the name.

Butcher. A slaughterer of cattle for the table; also a vendor or retailer of the same. The methods of killing cattle vary in different countries, as do the means by which the meat is disposed of to the consumer.

Butt. The square end of a connecting-rod, to which the bush-bearing is fixed by a metal clasp or strap fastened to the butt by means of a cotter and gib. At the end of a connecting-rod, a strap-head is a journal-box. Cotter is a wedged-shaped piece of wood, iron, or other material, used for securing parts of machinery. Gib is a piece, notched or not, to hold other parts together.

Button. See Assaying.

Buttress. A kind of butment, constructed arch-wise, serving to support a building or wall.

Cabinet-maker. See Carpentry.

Cable. A sea term for a strong rope, or chain, which serves to keep a ship at anchor. The Atlantic telegraph cable consists of wire that is enfolded by strands of twisted wire, layers of gutta-percha, hemp and pitch, etc. "Cable's length," the measure of 120 fathoms, or 720 feet. "Cable-molding," round molding, cut so as to resemble a rope.

Cable Street Cars. A track, with endless cable underneath surface of the ground, the latter being propelled by steam. Midway between the rails composing each track are two strips of iron which run parallel with the rails. A driver on a car that carries the grip, by means of a lever throws on or off the grip, which runs down from the floor of the car through between the strips of iron to the tunnel, where the cable is in motion at the rate of six or eight miles an hour; the grip clasps the cable tightly or otherwise, as the driver wishes to go fast or slow.

Caen Stone. An oolitic limestone, extensively quarried near Caen, in France. It forms an admirable building stone.

Calculating-machines. Are those by which all the common arithmetical operations and others of a more complex nature may be readily effected, thereby saving a considerable amount of time to those who are engaged in calculating long series of figures, and insuring results which cannot fail to be correct.

Caliber Compasses. An instrument, with curved legs, used for measuring the diameter of shot and shells and cylindrical bodies.

Calking-iron. A chisel, used in driving oakum into the seams between the planks of a ship's decks or sides. A reeming-iron or chisel is used for opening the seams of planks.

Cam. A plate with curved sides, fixed on a revolving shaft for converting a rotary motion into a rectilinear.

Camera Lucida. An optical instrument intended to facilitate the perspective delineation of objects. It has been most successfully employed in delineating the forms of wonder and beauty revealed by the microscope. "Camera Obscura," an optical apparatus, representing an artificial eye, by which the images of external objects, received through a double convex glass, are shown distinctly, and in their native colors.

Cam-wheel. A wheel of irregular outline, used to produce a variable or alternating motion in machinery; a cam, which see.

Cannon. A hollow cylinder through which a revolving shaft passes. In military affairs, a great gun. "Carronade," a kind of short cannon, first made in Scotland. "Columbiad," a heavy piece of ordnance having combined certain qualities of the gun, howitzer, and mortar. "Dahlgren gun," a gun of heavy caliber, somewhat similar to the Armstrong gun, which see, and named after its inventor, an officer of the United States navy, the breech is extremely strong, and it fires shells as well as solid shot. "Field-gun," a small kind of cannon; a field-piece. "Gatling-gun," a machine gun, having six barrels, and capable of firing two hundred shots a minute, named after the American inventor, R. J. Gatling. "Howitzer," a short cannon for throwing large projectiles. "Krupp gun," a gun made at Krupp's works, at Essen, in Prussia; the largest, an enormous piece, was exhibited at the Paris Exhibition, made of solid steel, and constructed to fire a shot weighing 1,212 pounds; its caliber is fourteen inches, and its length seventeen feet. "Mortar," a variety of short cannon of a large bore, with chambers, employed to throw shells or carcasses at considerable distances. "Swivel-gun," a gun which may be turned on a pivot in any direction.

Cantilever. A projecting piece or bracket for supporting a cornice, balcony, etc.

Caoutchouc (or Gum-elastic). See India rubber.

Capital. The uppermost part of a column, serving as the head.

Capstan. A large piece of timber resembling a windlass, placed behind the mainmast. It is a cylinder with levers, used to weigh anchors, to hoist up or strike down topmasts, etc.

Cardiac Wheel. A wheel made in the shape of a heart; a cam.

Carding-machine. A machine in which the fibres of cotton, or wool, are combed or carded, to disentangle them from each other, and bring them into a proper condition for spinning into yarns and thread. The machine consists of wooden cylinders or drums to which straps of leather are fastened, which are perforated with numerous wires regularly arranged. The exterior of a cylinder resembles a circular brush. The cotton or other material is put into the machine at one end, and is rapidly whirled round from cylinder to cylinder until it comes out at the other end in the form of a filmy fleece; this is received on another cylinder called the doffer, from which it is removed by the doffing-knife, and gathered into a narrow mass by passing through a funnel-shaped aperture, when it is ready to be spun into yarns and thread.

Carpentry. The expression is more particularly applicable to the system of framing pieces of timber together to form partitions, roofs, and floors of buildings, the trusses and frames of wooden bridges, and the centring or supports on which large arches and the arches of bridges are built, as well as the keel, ribs, timbers, and planks forming the hull of a vessel. The interior fittings of a house, such as the stairs, skirting-boards, flooring, doors, windows, etc., are the work of the joiner; and pieces of household furniture, particularly those made of the more valuable kinds of wood, come from the hands of the cabinet-maker.

Carriage. In general, a vehicle for carrying goods and persons; in gunnery, the machine upon which the gun is mounted; in carpentry, the frame of timber-work which supports the steps of wooden stairs. "Barrow," a light, small carriage, moved by hand. "Buck-board," a rude vehicle of four wheels, with a seat for two persons, the board-part springing with its own elasticity when the wheels come in contact with an obstacle. "Bicycle," a carriage for one, having one very large wheel and one very small, disposed one behind the other, with a seat above the large wheel for the rider. It is propelled by movement of the feet upon cranks fixed to the axle of the large wheel. "Cab," a small light carriage for one horse. "Cabriolet," a one-horse pleasure-carriage. "Calash," a light, covered carriage, with seats for four inside, and a separate seat for the driver; in Canada, a two-wheeled vehicle, having one seat, with a place in front for the driver. "Carry-all," a light, one-horse vehicle for carrying a number of persons. "Cart," a carriage with two wheels. "Chaise," a two-wheeled vehicle for two persons. "Chariot," a war vehicle; a four-wheeled pleasure-carriage. "Clarence," a close four-wheeled vehicle, with one seat inside, and a seat for the driver. "Coach," a large, close, four-wheeled vehicle. "Coupe," a four-wheeled, close carriage for two persons, and a separate seat for the driver. "Dog-cart," a one-horse cart, with two wheels or four wheels, used by sportsmen to carry dogs for hunting. "Gig," a very light kind of two-wheeled chaise. "Gladstone," a roomy four-wheeled pleasure vehicle, with seats for six, including driver and footman. "Jump-seat," a carriage with a movable seat. "Kibitka," a wagon without springs, used by Tartars as a kind of movable habitation. "Landau," a convenient carriage, made at Landau, in Germany; it is hung and fitted like a coach, but constructed so that the upper part can be thrown open occasionally in fine weather. "Rockaway," a pleasure-carriage, with fixed top. "Stanhope," a light two-wheeled carriage, so-named after Lord Stanhope, for whom it was made. "Sulky," a two-wheeled vehicle, for one person. "Tartan," a long, covered carriage. "Velocipede," a carriage for one, with wheels of unequal diameter, similar in form to the bicycle, which is capable of being driven with great speed. "Wagon," a four-wheeled vehicle for carrying freight.

Carrier. A piece fastened to a face-plate in a lathe.

Carving. A term applied more particularly to the production of figures, fruit, flowers, and ornamental work, from pieces of wood or ivory, by cutting the same into the desired shape by means of chisels, gouges, saws, and files of the necessary forms. The art of carving is called sculpture when stone is the material used, and chasing when the work is executed in metal.

Caryatides. The term given to female figures that are used instead of columns, to support an entablature. Atlantes is the name given by the Greeks to male figures used instead of columns or pilasters for a similar purpose.

Case. A receptacle divided into numerous compartments, for holding types. The lower-case contains fifty-four boxes, for each small letter of the alphabet, each figure (from 1 to 0), punctuation points, spaces for placing between the words, quadrates of four sizes for justifying lines and making paragraphs. The upper case is divided into ninety-eight boxes, and contains the capital letters, small-caps, sign marks, dashes, braces, bracket, parenthesis, etc. The compositor sets the types, according to the copy, which he has placed conveniently before him, using an iron instrument called a composing-stick, in which he arranges each type—one after another—in the process of forming words and lines. When the stick has received all the lines it will hold, the compositor, by a peculiar grip on the type with his two hands, lifts it out and deposits it on a frame or galley. The galley, on being filled with matter (as type is called after its removal from the stick), is secured and an impression of its contents is taken on a slip of paper, which is called a proof-slip or sheet. The proof-slip, together with the original copy of the matter, is then sent to the proof-reader, who, with an assistant, reads and verifies it with the original copy, marking mistakes, as they are found, on the margin of the slip; the assistant is called the copy-holder, and reads aloud from the copy or manuscript to the proof-reader, who traces the printed lines on the proof-slip, pencil in hand. After being corrected by the compositor who set the type, it is made up into pages or columns as required, and sent from the composing-room to the press-room as a form. The form is then placed upon the smooth bed of a machine or press and any required number of impressions are made on a specified or uniform size of paper. From the press-room the printed sheets of the form go to the book-binder, if printed in book-form; if in the form of a newspaper, the sheets are folded on the spot, and delivered direct to the publisher or author of the matter. (See Bookbinding.) "Case-rack," a wooden frame for receiving printers' cases when not in use. See Quadrat, em.

Casting. A term applied to the process of pouring a metal or some other substance, in a fluid or semi-fluid state, into a mold. The process is

applied to the manufacture of articles in iron, bronze, bell-metal, lead, steel, copper, porcelain, plaster, and cement of various kinds.

Catamaran. See Vessel.

Catharine-wheel. A circular window, frequently found in cathedrals and churches built in the Gothic style.

Celluloid. A species of solidified collodion produced by dissolving gun-cotton in camphor with the aid of heat and pressure; used as a substitute for ivory, and may be molded so that the most delicate and elaborate articles can be made with it.

Cavetto. See Base.

Cement. A compound of pitch, brickdust, plaster of Paris, etc., used by chasers and other artificers for making their work firm.

Center-bit. See Bit.

Center of Gravity. That point about which all the parts of a body in any situation balance each other.

Center of Gyration. That point in a rotating body, or system of bodies, at which, if the whole mass were collected, a given force applied would produce the same angular velocity that it would have communicated to the system in its first condition.

Centrifugal. Force exerted from the center outward. "Centripetal," tending toward the center.

Chain. A measure of length, made of a certain number of links of iron wire, serving to measure a certain quantity of ground. Gunter's chain consists of a hundred such links, each measuring 7.92 inches, and therefore equal to sixty-six feet or four poles. 1 square chain = 10,000 links = 16 poles. 10 square chains = 100,000 links = 160 poles = 1 acre.

Chain-pump. A device in the form of an endless chain, equipped with plates or buckets at regular intervals, passing upward through a wooden tube and moving on two wheels, one above and one below. "Chain-wheel," an inversion of the chain-pump, whereby it becomes a recipient of power.

Chair. See under the head of Rail.

Chaise. See Carriage.

Chaldron. A dry measure, consisting of thirty-six bushels.

Champ. A small sloping surface in architecture.

Chamfer. To cut a groove in; to flute.

Change-wheel. One of a set of wheels of different sizes and number of teeth, which may be changed for other wheels in machinery.

Chapiter. See Ionic order.

Chariot. See Carriage.

Chase. A square iron frame, used by printers to lock up forms of type, when made up in columns or pages.

Chasing. See Carving.

Cheeks. A general name among mechanics for pieces of timber in any machine, which are two of a kind.

Cheese-press. A press in which the curds are pressed for making cheese.

Chevron. A zigzag architectural ornament.

Chill. To harden by sudden cooling; as, a chilled wheel, made of cast iron, and so hardened.

Choke-damp. A name given by miners to carbonic acid, as distinguished from fire-damp, which is carburetted hydrogen.

Chorography. Art of drawing maps of particular provinces or districts. It is, therefore, less extensive than geography, which includes a description of the whole earth, and more extensive than topography, which confines itself to a single place or town.

Chrome-yellow. A valuable pigment, made by precipitating a salt of lead with bichromate of potash. Much used by painters on account of its brilliant yellow color.

Chuck. An appliance fixed to the shank of a turner's lathe for holding the material to be worked on.

Cinquefoil. An ornament of five leaves united; common in the tracery of windows, in parapets, etc., of Gothic buildings.

Circle. A plain figure bounded by one line only, called the circumference, to which all the lines drawn to it from a point in the middle, called the center, are equal to each other. The line which divides it into two equal parts is called the diameter. Every circle is supposed to be divided into 360 parts or degrees, wherefore angles are measured by the arc of a circle. See Quadrant.

Circumferentor. An instrument used by surveyors for taking angles.

Clack-valve. A simple valve with a flap, which, when lifted, falls with a clacking sound.

Clamp. An instrument with a screw by which the work of a joiner is held together.

Clarence. See Carriage.

Clarion. A kind of trumpet whose tube is narrower, and tone more acute, than the common trumpet. "Clarionet," an agreeable and sweet-toned wind instrument of the reed kind.

Cleat. A small strip of wood nailed to some work in the hands of the carpenter to hold it together; a piece of wood, having various forms according to its use, employed in vessels to fasten ropes to; a piece of iron fastened to a shoe.

Clevis. A piece of iron bent to the shape of an ox-bow, with the two ends pierced to receive a pin, used on the end of the tongue of a wagon, or plow, to draw it by.

Clipper. See Vessel.

Clod-crusher. An agricultural instrument for crushing and pressing the soil. It consists of a cylindrical roller divided into many pieces or wheels, all strung upon one axle.

Clout-nail. A nail used for fastening patches of iron.

Clutch. A projecting tooth or other form of machinery, for connecting shafts, etc.

Cock. The wrought-piece that covers the balance in a clock or watch; the spout which is put into beer or water barrels, etc. See Water-gage, Cocks, etc.

Coffer-dam. A case of piling fixed in the bed of a river, for the purpose of building a pier dry.

Cog. The tooth of a wheel. "Cog-wheel," a wheel with cogs or teeth..

Collar. A circular or ring-like part of a machine, used to prevent irregularity of motion.

Colonnade. See Balcony.

Column. A pillar, used to support a superincumbent weight in various ways,—it consists of three parts, namely, base, shaft, and capital. (See Base, and Capital.) A column that appears to be composed of a cluster of columns, is called a clustered column.

Compass-plane. A plane convex on the under side for smoothing curved timber.

Composite. One of the five orders of architecture, so-called because it is composed of the Ionic and Corinthian orders.

Condenser. A term used to denote any apparatus used for cooling heated vapors and reducing them to a liquid form. The pneumatic condenser is a syringe worked on the same principle as the force-pump, by which a large quantity of air can be forced into a given space. See Exhaust.

Conduit. A pipe for the conveyance of water to any particular part.

Console. Same as Bracket.

Cooler. A vessel used by brewers, for cooling the beer after it is drawn off.

Coping. The stone covering on the top of a wall.

Copper. A hard, sonorous, ductile, and malleable metal, of a characteristic reddish-brown color. It is next to iron in specific gravity, but lighter than gold, silver, or lead.

Corbel. The name given to blocks of stone projecting from the surface of a wall to support the openings of towers, or the ends of the beams of the floors in old castles.

Corinthian Order. The most profuse and ornamental of the five orders of architecture, the third in order, and so-called because columns were first made of that character at Corinth. See Architecture.

Corliss-engine. An engine having a variable and self acting cut-off. (See Cut-off.) It has two inlet and two exhaust valves, each of which vibrate on its own rod or spindle, within a bored space. The valves act independently by means of rods from a vibrating disk and an eccentric and rod. At each stroke of the engine, the valve-opening mechanism is thrown out of gear, when the valve is instantly closed by a spring. The instant at which the cut-off takes place is dependent upon the position of the balls of the governor at the moment.

Cornet-a-Piston. A new kind of wind instrument, very popular among modern composers. It is virtually a post-horn with the addition of three pistons.

Cornice. Any molded projection that crowns or finishes the part to which it is affixed, as the cornice of a room, a door, etc.

Cotter. See Butt.

Coulter. The fore part of a plow, with a sharp edge to cut the earth.

Counter-balance. Addition of weight to the side of a wheel opposite to that whereon a crank-pin is attached; as, the mass of iron cast in the locomotive engine wheel opposite to the crank-pin, to counterbalance the weight of the latter.

Coupling. The name given to various arrangements by which the parts of a machine may be connected or disconnected at pleasure, or by which a machine may be disengaged from, or re-engaged with, a revolving wheel or shaft, through which it receives motion from a steam-engine, water-wheel or other prime-mover. (See Clutch, Gland, Engaged, and Friction clutch, etc., under Friction.) "Coupling-box," the box into which the ends of two shafts are fastened and connected.

Crab. A kind of crane for moving heavy weights.

Cradle. A frame of timber raised on each side of a ship, for the more convenient launching of her.

Cramp-irons. Irons which are used to fasten stones in buildings.

Crane. A machine, with ropes, pulleys, and hoops, for drawing up heavy weights.

Crank. A shaft or axis bent like an elbow, and used for converting rectilineal into circular motion, or vice versa. "Crank-pin," a pin joining the ends of the crank-arms.

Crocket. An ornamental projection on the edges of the sides of pinnacles, canopies, spires, etc., consisting chiefly of leaves and knots of foliage.

Cross-head. In a steam-engine, that part which forms a cross-bar at the end of a piston-rod where the latter is joined to the connecting-rod. "Guide-bars," the bars in which the cross-head slides, called also guide-blocks, slide-rods, and slides.

Cross-tail. An iron bar connecting the side-lever of a marine engine with the piston-rod.

Crown. The uppermost member of a cornice. "Crown-post," the post which sustains the tie-beam and rafters of a roof, called also king-post. "Crown-saw," a circular saw made by cutting the teeth on the edge of a hollow cylinder. "Crown-wheel," a cog-wheel with teeth at right angles to its plane.

Cupola. A term applied to any covering placed over a building and taking the form of a hemisphere or spherical vault, whether round or polygonal, at the base. The term dome, to be strict, is applied to the exterior, or convexity of the covering, and the word cupola is applied to its interior surface, or concavity.

Cup-valve. A valve made in the form of a cup, or a hemisphere.

Cutter. See Vessel.

Cutting-engine. See Engine.

Cut-off. An appliance of the steam-engine for cutting off the passage of steam from the steam-chest or supply to the cylinder, at the time the piston has made part of a stroke, in order to allow the remainder of the stroke to be made by the expansive force of the steam already in the cylinder. See Expansion.

Daguerreotype Process. Iodide of silver is a compound very sensitive to the influence of light. In daguerreotype experiments a polished plate of silver is exposed to the vapor iodine, or bromide vapor, until it becomes covered with a pale yellow film of iodide of silver. If the iodized plate be put into a camera obscura, and an object be allowed to fall upon it through a compound lens, the iodine will be separated from the silver on those parts of the plate upon which the light-rays from the object fall. The plate is afterward exposed to the vapors of mercury—a certain white metal, like silver—which amalgamate with those parts of the surface that are freed from iodine by the interposition of the particular object, whose outline and features have been reflected or cast upon it, and thus the picture is developed. Then the plate is immersed in a saline solution, which removes the excess of iodide of silver, and thus prevents any further action of the light upon the plate.

Damp. See Choke-damp.

Danaide. A kind of horizontal wheel, moved by a fall of water.

Dash-pot. A cylinder containing fluid, and having a loosely-fitting piston, to ease the blow of any descending weight.

Davit. A piece of timber projecting over a ship's bow, used as a crane to hoist the anchor out of the water in such a manner as to prevent its rubbing against her side; pieces of iron placed in pairs in certain parts of a vessel's sides and stern, employed for hoisting and lowering boats.

Derrick. A temporary crane consisting of a spar supported by stays and guys, carrying a purchase for loading or unloading goods on shipboard, invented by Mr. Bishop, an American. Derricks are used in this country as lifting powers, and are very useful and economical.

Dibble. A pointed garden-tool for making holes to plant in.

Differential Gear. A combination of wheel-movement by which a motion is produced equal to the difference between two other movements.

Discharger. An instrument made of glass or baked wood, by the help of which an electric jar is discharged; a discharging rod.

Distribution. The throwing of type into cases by a compositor.

Diving-bell. A hollow vessel, by which persons may descend below the water, and remain for some time without inconvenience. It is used for the recovery of lost property, etc.

Doffer. See Carding-machine.

Dog. A grappling iron for fastening into wood or other heavy articles for the purpose of moving them.

Dome. See Cupola.

Doric. The most ancient of the Grecian orders of architecture, made, as is said, in imitation of the hovels erected by the original inhabitants of Greece. See Architecture.

Dormer-window. A window made in the roof of a building.

Dove-tailing. A method of joining one board into another, by pins in the one fitted to holes in another.

Dowel. A piece of wood fastened to a wall, so that other pieces may be nailed to it.

Drag. A mechanical arrangement, by which the speed of a vehicle can be decreased by stopping or slackening the rotation of one or more of the wheels. In railway affairs, it is called a brake.

Drain (or Land Draining). The process of carrying water off from the land, sometimes by means of open drains, but more commonly by drains made to a certain depth under the ground, which are filled with bushes so as to admit the water.

Draught (or Draft). The figure of an intended building, described on paper; the quantity of water which a ship draws when she is afloat; also, that which pertains to drawing, as draught horses. "Draught-compasses," an instrument furnished with several movable points for making fine lines in architectural drawings.

Draw-head. In railway machinery, a cushion or buffer to which a coupling is attached. See Buffer.

Drawing-knife. A long blade with a handle at each end, used by hand to shave off wood-surfaces.

Draw-spring. The spring to which a draw-head is fastened.

Dredging-machine. A machine employed for the purpose of clearing out or deepening the channels of rivers, harbors, etc.

Dress. To cut to proper dimensions, smooth or finish, etc. In husbandry, any stuff, such as loam, sand, etc., which is put on land to improve the soil.

Drift. A conical tool of steel for enlarging holes in metal, by being driven into it.

Drill. A tool used for boring holes in wood, metal, stone, bone, etc. Drills for boring iron have pointed heads, with sharp edges projecting from them, that cut in different directions. Those for boring wood are like an auger or large gimlet, or they are broad and flat, with a projecting spike in the center and cutting edges on either side,—drills of this form are called center-bits.

Driver. Any part which communicates motion to another part; as the driving-wheel of a locomotive.

Drum. A short revolving cylinder or barrel, furnished with means to communicate motion to other machinery. When very short in the direction of the axis, it is called pulley, and rigger.

Dry-point. A sharp, fine-pointed etching needle, used to cut fine lines in a copper or steel plate without biting them in with acid.

Ductility. See Gold, and Malleability.

Dyke. An embankment of earth, sometimes revetted with masonry, or secured with a sloping front of stonework to prevent the water of the ocean or any river from overflowing the low lands that have been drained and brought into cultivation.

Dynamics. See Statics.

Dynamometer. The name given to all instruments that are constructed for the purpose of measuring the power that can be exerted by the human frame, animals, or machinery, whether by a single effort of strength or by a continuous series of efforts exercised during any given time. A dynamometer usually consists of a spring, to be acted upon by the applied force, and an index and scale.

Easel. A frame on which a painter sets the cloth, etc., to be painted.

Ebonite. India rubber made hard by vulcanization.

Eccentric. A sort of wheel or revolving disk, in which the axis, or center of motion, does not coincide with the geometrical center. There are a great variety of eccentrics, and they are very useful in converting one kind of motion into another.

Elasticity. See Stress.

Electric Light. A brilliant light that is produced by an electric current generated with the aid of appropriate machinery. Edison's electric lamp consists of a pair-shaped glass globe about 4½ inches in height, exhausted of air, into which is sealed a filament of carbonized bamboo, slightly thicker than a horsehair, which is raised to incandescence by a current of electricity. Electric lights are also produced by means of the current and contiguous carbon points, the latter being shaded with globes open at the top.

Electro Calico-printing. The art of producing patterns on cloth by the chemical action of the voltaic current.

Electro-magnet. See Moving powers.

Electrometer. An instrument for measuring the quantity or intensity of electricity, or for indicating the presence of electricity; an instrument for discharging electricity from a jar.

Electro-plate. A precipitation of silver or gold on a surface of copper, or German silver metal.

Electro-tint. The art or process by which an etching is produced through the means of galvanism.

Electrotype. The term commonly applied to the art of depositing copper and other metals in or upon suitable molds, through the agency of voltaic electricity, so as to produce faithful copies of coins, medals, statues, engraved blocks, wood-cuts, forms of metal type, and other works.

Elizabethan Order. See Architecture.

Emboss. To carve a figure, so that it will project from the plane in which it is cut; to ornament in relief.

Engaged Columns. A term applied to columns sunk partly into the wall to which they are attached. "Engaged wheels" are those wheels in gear with each other, the driver being the engaging wheel, and the follower is the wheel engaged.

Engine. A term applied to any compound machine or instrument composed of various parts, and intended to produce some effect by mechanical force; such as a pump, a windlass, etc. A fire-engine consists of two forcing pumps so combined that their joint action produces a constant and powerful stream of water, which, by means of a flexible pipe, or hose, may be directed at pleasure to any point. The steam-engine, first constructed by James Watt, a native of Greenock, was for raising water by means of the expansive force of steam; it has since undergone many improvements, and made applicable to every sort of work which requires an extraordinary moving power. The steam-engine was first successfully adapted to navigation by Robert Fulton, of the United States. A cutting-engine, or machine for dividing and cutting the teeth of cog-wheels, is the invention of an American mechanist. An air-engine is an engine put in motion by hot air. For Rotary Engine, Rotary Pump, etc., see Rotary.

English. The name of a variety of printing type, larger than pica.

Engraving. The art of representing figures in metal, wood, or stone, by means of lines cut thereon.

Entablature. See Base.

Epicycloidal Wheel. A stationary wheel or ring toothed on the inside, and geared with another toothed wheel of half the diameter of the first. The inner wheel revolves about the center of the outer wheel, the whole being a contrivance for securing parallel motion.

Escapement. In horology, escapements are of various kinds, as the crown escapement of an ordinary watch, anchor escapement of a common clock, horizontal escapement of a watch, duplex escapement, detached escapement, etc. In clock-work the common escapements consist of the swing wheel and pallets only. By means of the escapement, the impulse of the wheels is communicated to the pendulum.

Escutcheon. A thin metal plate, placed at the key-hole of a door as a guard or ornament.

Etching. A method of engraving on metal, glass, or the like, in which the lines and strokes are eaten in with aquafortis.

Etruscan Architecture. There are but few existing remains of the constructive works of the ancient Etruscans. It is certain that all works of a public nature were eminently characterized by solidity of construction, and were probably plain and devoid of elaborate sculptured decorations. The Tuscan order of architecture, the plainest and most massive in style of the five classic orders, is named after this people.

Eudiometer. An instrument for ascertaining the purity of the air, or the quantity of oxygen and nitrogen in atmospherical air.

Exhaust. The steam let out of a cylinder after it has been used. "Exhaust-pipe," the pipe that conveys steam to the outer air or to the con-

denser. "Condenser," that part attached to the cylinder where the steam is condensed.

Expansion. The pressure and operation of steam in a cylinder after its communication with the boiler has been cut off. "Expansion-gear," a gear or cut-off, variable or adjustable, that may be made to operate at different points of the stroke of the piston for cutting off steam while the engine is in motion. (See Cut-off.) "Expansion-joint," a joint for connecting steam-pipes, so as to admit of one pipe sliding within the enlarged end of the other when the length increases by expansion. "Expansion-valve," a part of a cut-off, which see.

Face. The principal flat surface of a part. "Face-plate," the disk fastened to the revolving spindle of a lathe.

Fan. Any leaf-like contrivance used for producing currents of air, in winnowing corn, other kinds of grain, blowing a fire, ventilation, etc. "Fan-wheel," a fan-blower.

Fast. Applied to pulleys, called fast and loose, denotes two pulleys situate side by side on a shaft that is driven from another shaft by means of a band. In stopping the shaft, the band is shifted from the fixed pulley to the loose one, and vice versa.

Feather. An elevation on an axis or cylinder which coincides with a groove in the eye of a wheel, to cause both to turn at the same time. "Feathering-wheel," a paddle-wheel of which the floats, acted upon by the water, turn so as to dip nearly perpendicularly to the surface, instead of standing erect.

Feed. Those parts of machinery that move the work to the cutting tool, or vice versa, in dressing wood or metal. "Feed-head," a cistern so made as to supply water by its own weight to the boiler of an engine. "Feed-heater," a vessel in which feed water is heated by waste steam before it is forced into the boiler. "Feed-pipe," a pipe which supplies the boiler of a steam-engine with water. "Feed-pump," a force-pump which supplies the boiler with warmed water through a feed-pipe.

Felloes. The pieces of wood which form the circumference or circular part of the wheel.

Ferrule. A ring of iron or other metal put around anything to hold it firm or prevent it from splitting. In steam-boilers, a bushing for widening the end of a flue.

Festoon. An ornament of carved work in the form of flowers, etc., depending in an arch.

Figure-head. An ornamental figure or bust, emblematical of war, navigation, or commerce, etc., fixed on the top of the projecting portion of a ship's stem or cutwater.

File. An implement used in many trades to produce a smooth surface on hard substances, as metals, ivory, wood, etc.

Fillet. See Base.

Finial. The upper extremities of pinnacles in Gothic architecture, in the forms of knots or bunches of foliage.

Fire-engine. See Engine.

Fish-beam. A beam, one of whose sides swells out like a fish.

Fish-joint. A splice bolted on railway iron to hold ends of rails together.

Flange. The metal rim bent over in gas-pipes, water-pipes, etc., in order to join on other lengths of the same. The term is also applied to the projecting outside circumference of a railway-carriage wheel, by which the wheel is prevented from running off the rails.

Flat. A car without a roof.

Float-board. A board fixed to the circumference of a wheel, upon which the water acts to set the wheel in motion.

Flue. A narrow passage in the wall of a house, made of fire-proof material, for carrying off smoke. When a number of flues are built close together in a party-wall between two houses, or in the gable-ends of a single house, the wall itself is called a stack, or chimney-stack; and that part of it which rises above the roof is called the chimney-shaft. The walls which separate flues built side by side in a stack, are called withs, the walls which form their front and back being named the breast and back respectively. See Party-wall.

Fly. That part of a jack which puts the rest of the machine in motion. "Fly-wheel," a wheel with a heavy rim, placed on the shaft of any machinery put in motion by any irregular or intermitting force, for the purpose of rendering the motion equal and regular by means of its momentum.

Flying-machine. A machine invented by Prof. Ritchell, consisting of a black silk cylinder some twelve feet in diameter and twenty-four in length, with a capacity for nearly 3,000 feet of gas, from which cylinder is suspended by means of cords and rods a car composed of slender brass rods, which extend the whole length of the cylinder, tapering to a point at either end. The platform upon which the operator sits is attached to the center of the car. Two cranks attached to a wheel, front the seat. The wheel connects with an upright shaft, and to this at the lower end is attached a fan closely resembling the screw of a propeller. The fan, which is constructed of thin brass plates, is level with the bottom of the platform. Another brass fan is affixed to the front end of the car, and this is so constructed that it can be turned in any direction by the occupant simply moving his feet, while at the same time he can comfortably work the center fan with his hands. The machine has been patented. A flying machine, designed by Prof. Baranowski, a small model of which has been repeatedly tried with much success in St. Petersburg, Russia. It consists of a great cylinder intended to have the form of a bird; the interior is provided with steam machinery, having power proportioned to the size of the apparatus; it has two lateral propellers, and one rear propeller; the smoke, gases, and steam issue from the end, which, when the structure passes through space, will give the appearance of the tail of a brilliant comet.

Foil. A rounded, leaf-like ornament in windows, etc. "Foliation," the act of ornamenting with foils, or the ornaments themselves; feathering.

Follower. The part of a machine that receives impulse from another part.

Foot-valve. The valve that opens between the condenser and air-pump of a steam-engine.

Force. In mechanics, an action between a pair of bodies, which changes, or tends to change, their relative condition as to rest or motion.

Forcing-pump. A pump, with solid piston, used for forcing water by direct action of the piston. It has also a side tube through which the water is forced.

Forge. A furnace, in which smiths heat their metals red-hot, or in which the ore taken out of the mine is melted down.

Form. See Case.

Foundry. The art of casting metals in various forms; also the place where this business is done. Small works are cast in sand, which, being duly prepared, is put into a wooden frame; then wooden or metal models of what is intended to be cast are put into the sand so as to leave their impression. When the molds are fully prepared, the fused metal is poured out of the crucible into an opening which leads to the several patterns. After the whole has been set to cool, the cast work is taken out of the sand. The mold for very large articles is made of wet tempered loam, built up by degrees in a pit, into which the melted metal is made to run along a channel on the ground to the mold.

Four-way. Allowing passage in four different ways, as a four-way cock.

Frame. A stand to support printers' cases. See Case.

Fret. Small fillets intersecting each other at right angles, and used by the ancients on flat members. See Base.

Friction. The resistance which a moving body meets with from the surface of the body on which it moves. "Friction-clutch," a kind of coupling by which machinery is put in and out of gear. Friction-balls or friction-rollers are used to relieve friction in revolving and moving bodies. "Friction-cones," a kind of slip coupling by which motion is communicated by means of the friction of two cones. "Friction-wheels," two wheels overlapping each other and sustaining at the point where their circumferences meet the bearing of a revolving shaft, for the purpose of relieving it of friction.

Frieze. That portion of the entablature which is between the architrave and the cornice. (See Entablature, under Base.) It was generally adorned with triglyphs in the Doric order, the intervening spaces, called metopes, being filled with sculptured figures in alto relievo, or with the skulls of oxen and wreaths alternately; while in the Corinthian and Composite orders it was ornamented with figures or scroll-work in low relief. In modern domestic architecture a frieze is frequently introduced immediately below the cornice of an apartment. "Triglyph," a member of the Doric frieze,—a slightly projecting tablet channeled with two grooves or glyphs.

Frog. A triangular crossing plate, at the point where one track branches from another on a railway line. Cross-frogs are the pieces of iron at those points where one track crosses another at right angles.

Fulcrum. The prop or support by which a lever is sustained, or the fixed point about which a lever moves.

Furnace. A fire-place for melting, distilling, and other chemical processes, so built as to cause the fire to burn vehemently.

Futtock. See Rib.

Gable. The triangular end of a house, from the cornice or eaves to the top. "Gablet," a small ornamental gable, or canopy. A gable roof is a sloping roof which forms a gable.

Gad. In mining, a small instrument of iron with a long wooden handle, used to break up the ore.

Gallery. Among miners, a long narrow passage under ground; a passage leading to several apartments.

Galley. See Case, and Vessels.

Gallows-frame. That part which supports the beam of a beam-engine.

Galvanic Battery. An apparatus which is employed in generating galvanism. "Galvanic pile," the apparatus first made by Volta, which consisted of a certain number of pairs of zinc and silver plates, separated from each other by pieces of wet cloth, in the order of zinc, silver, and wet cloth in regular succession. The materials usually employed now are copper and zinc in alternate disks. "Galvanism," a branch of the science of electricity, first discovered accidentally by Galvani, a professor, of Bologna, from whom it derives its name. By experiments on frogs, he discovered that all animals are endued with a peculiar kind of electricity. Volta followed Galvani in his researches, and discovered further wonders in this branch of science. Galvanized iron is iron coated with zinc by a peculiar process to preserve it from the action of moisture.

Gas. The term is popularly applied to the important material which is produced by the destructive distillation of coal, those species being chosen which contain the largest amount of hydrogen. Gasoline is a volatile fluid distilled from petroleum. "Water-gas," a gas formed by passing superheated steam over a bed of incandescent coal.

Gasket. Platted hemp, used for packing the piston and pumps of a steam-engine.

Gauge. Any instrument or apparatus used for measuring the state of a phenomenon. Thus the gauge of an air-pump is a barometer, connected with the interior of the receiver, which shows the degree to which the air is rarefied.

Many gauges are used in particular trades; such as the rod-iron gauge, the nail-rod gauge, the button-maker's gauge, etc.; others are used in watch-work; gun-makers also use a gauge for the bores of guns and rifles. "Gauge-cock," a kind of water-gauge; a stop-cock to show the height of water in a steam-boiler. "Siphon-gauge," a glass instrument containing mercury, used to measure the extent of rarefaction produced in the receiver of an air-pump.

Gear. A wheel with teeth or cogs, or a number of toothed wheels. Wheels are in gear when connected, out of gear when disconnected. "Gearing," the parts between which motion is communicated to machinery; as, belt-gearing, frictional gearing (see Friction), etc. "Gearing-chain," an endless chain passing around toothed wheels, and communicating motion between them.

Generator. An apparatus for heating water and forming steam for a steam-engine. The term is applied to a class of instantaneous generators.

Gib. See Butt.

Giffard Injector. An instrument for supplying steam-boilers with water, so named from the inventor.

Gimbal. A device for securing free motion in suspension; as, a ship's compass, marine barometer, etc.

Gin. A machine for driving piles.

Girder. The principal piece of timber in a floor.

Gland. A piece for engaging and disengaging machinery moved by belts.

Glaze. To crust over earthenware; as, in glazing, with a vitreous substance; to put glass into windows, or make glass lights for windows.

Gold. The richest and heaviest metal except platina, being the most solid and least porous. Gold is found pure, and not as the other metals, produced by smelting. The ductility and malleability of gold is such, that one grain of it will cover upward of fifty square inches, and an ounce is capable of being extended in the form of wire or thread many hundred miles.

Gong. A stationary bell whose hammer is moved by a cord, or other means, as in the engine-room of a steamboat.

Goose-neck. A pipe in form like the letter S.

Gothic Order. A style of architecture in which pointed arches of greater height than breadth, and a profusion of ornaments, in imitation of leaves and flowers, are the principal characteristics. See Architecture.

Governor. An ingenious mechanical arrangement by which regularity in the motion of a steam-engine is secured. When new fire has just been put on, more steam is likely to be generated than the engine, in its ordinary state, can use; and if free communication between the boiler and cylinder be permitted, more will be generated. To prevent this, two balls are set upon a cylinder which revolves with the engine, and these tend to revolve faster, the faster the engine goes. When it is going very slowly, they exert a certain action on a movable part to which they are attached, so as to keep open a valve between the boiler and cylinder; when it is going very quick, the balls fly fast, and, being connected with the valve, tend to close it, proportionally as they have diverged from the spindle. The steam has thus less outlet from the boiler, and is held in, until the engine's requirements and the supply become equalized.

Grafting. In horticulture, the process of inserting the branch of one tree into the stock of another, so that it may receive nourishment from it, while at the same time it produces a new tree, like the old one whence the graft was taken.

Granulation. A process resorted to to obtain metals in a coarse state of division. The metal is melted in a crucible, and poured into water from the height of three or four feet.

Graphite. See Black-lead.

Grapnel. A sort of small anchor with four or five flukes, or arms, used in boats and small vessels and in balloons.

Graver. See Burin.

Greek Architecture. The early architecture of Greece is exemplified in the massive remains of walls at Mycenæ, Argos, and others of the old Grecian cities, which are composed of huge, irregular, undressed blocks of stone roughly piled together. It is devoid of ornament, save in a few instances. See Architecture.

Groined. The curve or line made by the intersection of two arches which cross each other at any angle; as, a groined arch, etc.

Ground. In painting, the first spread of color which is put upon the canvas. In joinery, pieces of wood even with the plastering, to which finishings are attached.

Ground-joint. A joint made by rubbing together two surfaces with emery and oil.

Guano. The excrement of sea-fowls, found principally in large quantities upon some parts of the coasts of Peru, Bolivia, and Africa. Guano has been employed as manure by the inhabitants of Peru from the most remote periods. By its means sandy soils are rendered fertile.

Gudgeon. In machinery, that piece of iron in the end of a horizontal shaft which turns in the collar.

Guide-bars. See Cross-head.

Guilloche. An architectural ornament formed by intertwining bands.

Guitar. A musical instrument of a somewhat oval form, having a neck similar to a violin, and provided with six strings. It is played upon with the fingers, and most commonly employed in Spain where it is supposed to have originated.

Gun. In military affairs, a general term applied to all species of fire-arms. "Gun-metal," an alloy containing 90.5 per cent of copper and 9.5 of tin, used for casting ordnance and those parts of machinery which are subjected to considerable friction. "Gun-powder," a mixture of nitre, charcoal, and sulphur, in proportions which vary slightly in different countries, and according to the uses to which it is applied.

Gunter's Chain. See Chain.

Gutta. An ornament consisting of a row of inverted cones, attached to the lower part of the triglyphs in the Doric order.

Gutta-percha. The concrete juice of the Isonandra Gutta, a tree belonging to the family of the Sapotaceæ. Its plastic properties render it extremely useful in the arts. It is a powerful insulator, and is consequently much used for coating the wires for telegraphic purposes; it is also of much use to the chemist, as a material for making bottles, carboys, baths, etc.

Gyroscope. A rotating wheel mounted in a ring or rings in divers ways for showing the dynamics of rotating bodies, the composition of rotations, etc.

Hair-spring. A delicate contrivance in the lock of a fire-arm, which, being unlocked by a slight pressure on the trigger, strikes the tumbler, and so discharging the piece. "Tumbler," that part of a lock which keeps the load or shot-bolt in its place until made free in the act of shooting.

Halyards. In nautical language, the smaller ropes or tackle by means of which yards, sails, and signals are hoisted and lowered.

Hammer. A well-known tool used by mechanics, which consists of an iron head fixed crosswise upon a handle. The hammers used by carpenters, smiths, engineers, and numerous artisans, vary in size and form. The largest are those used in the manufacture of iron.

Hammer-beam. A horizontal beam which serves as a tie immediately above the foot of a rafter, generally supported by a rib springing from a corbel, which see.

Hance (or Hanch). In architecture, the end of an elliptical arch, a four-centered arch.

Hand-hole. An aperture in a steam-boiler, for inserting the hand, cleaning, etc.

Hand-wheel. Any wheel worked by hand.

Hanging-buttress. A buttress supported upon a corbel above the foundation.

Harrow. A drag with iron teeth, to break the clods after plowing.

Hatchet. See Ax.

Hawser. A small cable.

Head-light. A light with a powerful reflector, fixed at the head of a locomotive, to throw light on the roadway at night.

Heart-wheel. A wheel shaped like a heart; a cam. See Cam-wheel.

Helm-wheel. See Wheel and Axle.

Helix. In architecture, the small volutes introduced under the flowers of the Corinthian capital.

Hip-knob. An ornament, as a pinnacle, placed upon a roof. "Hip-roof," a particular kind of roof, which has neither gable heads, shred heads, nor jerkin heads. "Jerkin-head," the end wall of a building which is built up higher than the side walls.

Hobnail. See Nail.

Hood-molding. A projecting molding, as over an arch.

Horse. A frame or trestle on which boards or planks are laid to be cut and otherwise worked; a stage on which pressmen set their heaps of paper for printing; a circular piece of iron fitted to the foot of a horse.

Horse-power. A power capable of raising 33,000 lbs. through one foot a minute. When an engine is said to be of so many horse-power, it is meant that it could lift so many times 33,000 lbs. through a foot in a minute.

Hotblast. A current of heated air sent into a furnace by means of a blowing machine. The mass of air passing through a blast-furnace is about six tons an hour. Of late years, much time and expense have been saved by using air already heated by a separate furnace.

Hot-well. In low-pressure or condensing steam-engines—a well for the hot water drawn from the condenser by the air-pump.

Housing. The framing of a journal-box, or that which keeps the latter in place; also, the pieces supporting the cross-slide of a planer. In architecture, a niche for a statue.

Hull. The frame or body of a ship, exclusive of the masts, yards, sails, or rigging.

Hydraulic (or Hydraulical). Pertaining to hydraulics. "Hydraulic crane," a crane operated by the pressure of water. "Hydraulic lime," lime which contains a small amount of silica and alumina, forming a mortar that hardens under water. "Hydraulic press," a machine by means of which an intense pressure can be applied by the agency of water,—the principle on which it acts is founded on one of the fundamental laws of hydrostatics, that any non-elastic fluid, such as water, possesses the property of transmitting pressure exerted against it at any point equally in every direction; hydraulic presses are used for reducing such substances as hay, wool, and cotton, and all goods that will bear compression without injury, into bails and packages of convenient size for conveyance by rail or vessel. "Hydraulic ram," a hydro-dynamic machine for raising water without the aid of any other force than that produced by the momentum or moving force of a part of the water that is to be raised.

Hydraulic Engineering. That branch of engineering which treats of the appliance of water as a motive power for mechanical purposes, and the methods that must be adopted to offer an effective resistance to the pressure which is exercised by any great volume of that fluid, whether it be in a state of rest or in motion.

Hydraulics. That branch of science which treats of fluids in motion and the methods by which useful results are obtained from them. Among the machines which serve for the display of the phenomena of hydraulics, are the syphon, the pump, and the fire-engine.

Hydrodynamics. That branch of science, or of engineering, which treats of the motion of

fluids, and also of the machines by which water is raised, or in which water is used as the first mover. The subject is divided into two parts, hydrostatics and hydraulics. The former includes the pressure, cohesion, and equilibrium of fluids, while the latter comprehends their motion, together with the machines with which they are connected.

Hydroelectric Machine. An apparatus, invented by Sir William Armstrong, whereby electricity is evolved by means of the friction of steam.

Hydrometer. An instrument for determining the relative densities, or specific gravities, of fluids; and thence the strengths of spirituous liquors, which are inversely as their specific gravities.

Hydrostatic (or Hydrostatical). Pertaining to the equilibrium of fluids. "Hydrostatic balance," a kind of balance contrived for the finding the specific gravities of bodies, solid as well as fluid. "Hydrostatic bellows," a machine for showing the upward pressure of fluids, and the hydrostatic paradox. "Hydrostatic paradox," a principle in hydrostatics, so-called because it has a paradoxical appearance at first view; it is this, that any quantity of water or other fluid, however small, may be made to balance and support any quantity or any weight, however great. "Hydrostatic press," see under the head Hydraulic, etc.

Hydrostatics. See Hydrodynamics.

Idle-wheel. A wheel placed between two others, for the purpose of transferring motion from one to the other without changing the direction of revolution.

Impact. In mechanical science, the action of one body upon another, to put the latter, if at rest, in motion, to increase, retard, or alter its direction. The point against which the impelling body acts is called the point of impact.

Impost. In architecture, that part of a pillar on which the weight of a building rests; or the part which receives an arch.

Inclined Plane. A plane inclined to the horizon, or making an angle with it, which is one of the mechanical powers.

India Rubber. The solidified milky juice of certain tropical plants, the largest supply being obtained from the Ficus elastica, a tree belonging to the order of Moraceæ, found in Assam; from other species growing in Java and America; from the Siphonia elastica, a native of Guiana and Brazil; and from the Urecola elastica, a climbing plant found in the islands of the Indian archipelago.

Indicator. A dynamometer applied to the determination of the work actually done by steam-engines.

Ingot. A wedge or bar of gold; a mold in which metal is cast.

Injection Water. In land steam-engines, the water which comes from a tank called the cold well, surrounding the condenser, and supplied by the cold-water pump. In marine engines, it comes directly from the sea. "Injection-cock," see under Steam-engine.

Ionic Order. So-called from Ionia, in Lesser Asia. The body of the pillar is usually channeled or furrowed with twenty-four gutters, and its length, with the capital and base, is twenty-nine modules, the chapiter being chiefly composed of volutes or scrolls. "Module," a certain measure by which the proportions of columns are regulated. "Chapiter," the upper part or capital of a pillar. "Volute," a spiral scroll in the Ionic and Composite capitals.

Iron. This important metal is most extensively diffused over nature, occurring not only in the inorganic kingdom, but entering into the composition of vegetable and animal structures. It occurs in nearly every part of the earth, in the form of ores, in the metallic state with nickel, cobalt, and other metals, in meteoric stones, some of which weigh as much as fourteen or fifteen tons. Iron is the only metal that is susceptible of magnetic attraction. Pure iron is very rarely to be found; the principal varieties of iron are the cast or pig iron, or that which is immediately extracted from the ore. "Wrought iron," that which has gone through the process of melting in a furnace. "Steel," that which has been heated in charcoal, and hardened by its combination with carbon.

Italian Architecture. A style of architecture founded on the old Roman orders. See Architecture.

Jack. An instrument in common use for raising very great weights of any kind. "Jack-lever," a sort of crane, consisting of small pinions worked with a common winch; the pinion works in the teeth of a large wheel, on whose axis there is fixed a small pinion with teeth working in a rack; by turning the pinion, the rack is raised, and with it any weight attached. "Jack-screw," a pedestal or support, in which works a screw, lever, rack and pinion, etc.

Japanning. The method of giving a hard and highly-polished surface to articles made of wood, metal, paper, or leather.

Jar. See Leyden Jar.

Jaw. A notch or opening in which something is fastened.

Jerkin-head. See under head Hip-knob.

Jet. A deep black sort of bitumen, susceptible of a good polish, and often wrought into toys, mourning jewels, etc.

Jib. The beam of a crane, from which the pulleys and weight are suspended; also, the foremost sail of a ship.

Joiner. See Carpentry.

Jointer. In masonry, a piece of iron used to secure the joints of a wall.

Joist. A piece of timber framed into a girder of a building. See Girder.

Journal. The part of a shaft that bears and moves in a journal-box; a bearing. "Journal-box," same as Axle-box, which see.

Kaleidoscope. An optical instrument invented and perfected by Sir David Brewster. By a peculiar arrangement of mirrors, or reflecting surfaces, it produces the appearance of a perfectly symmetrical pattern, which undergoes an endless variety of changes, by turning the tube in which the mirrors are fixed. It is chiefly used by calico-printers, potters, and carpet-manufacturers, who are thus supplied with an immense variety of patterns.

Keel. The lowest and principal piece of timber in a ship. The entire fabric of a vessel is supported by the keel, as the stem and stern posts, which are elevated on its ends, are merely continuations of it, and serve to connect and inclose the extremities of the sides by transoms, as the keel forms and unites the bottom by timbers. Some vessels are provided with what is termed a false keel, consisting of a strong thick piece of timber bolted to the bottom of the keel.

Keelson. One of the principal timbers of a ship, laid over the keel, of which it forms the interior or counterpart, and across all the timbers inside the vessel.

Key. The last board that is laid in a floor. In mechanics, a cotter, which see under the head of Butt.

Key-stone. The stone placed at the top or vertex of an arch to bind the two sweeps together. In the Tuscan and Doric orders it is merely a plain stone projecting a little; in the Ionic it is cut and waved somewhat like consoles; and in the Corinthian and Composite orders, it is a console ornamented with sculpture.

Key-seat (or Key-way). The groove or mortise to receive a key.

Kiln. A structure or machine for drying substances by the application of heat.

King-post. A beam rising from the tie-beam to the ridge of the roof. "King-truss," a truss for a roof with king-post attached.

Knee. A crooked piece of timber having two branches or arms, generally used to connect the beams of a vessel with her sides or timbers.

Knuckle-joint. The means of connection in machinery, consisting of a pin thrust into the forked ends of a connecting-rod.

Lacunar. An ornamental ceiling consisting of depressions or hollow compartments.

Lantern. In mechanics, a kind of pinion; a lantern-wheel. In architecture, a small dome raised over the roof of a building to give light and serve as a sort of crowning to the edifice.

Lap. In mechanics, the amount of lap over a steam-port made at a half-stroke of a slide-valve.

Last. See Boots, etc.

Lathe. A machine used in turning wood, etc., as the Blanchard machine, which can turn out a duplicate or fac-simile of any pattern whatever.

Lead. One of the most important metals, both itself and its compounds being applied to many useful purposes. It occurs in nature in combination with a large number of substances, but its most valuable ore is galena, or sulphide of lead, found in large quantities in various parts of the world. The carbonate of lead, which is a powder, is known as white lead; the red oxide of lead is otherwise called red lead.

Leader. The principal wheel in machinery. In mining, a small vein leading to a greater one.

Level. An instrument used to make a line parallel to the horizon. The plumb-level is that which shows the horizontal line by means of another line perpendicular to that described by a plummet or pendulum. The spirit-level consists of a glass tube, which is slightly curved, and nearly filled with alcohol or ether; adjustment to the horizon depends upon the position of a bubble, which is seen in the tube when the instrument is held horizontally.

Lever. A solid bar at each end of which a certain amount of force is applied in similar directions, and which is supported on a pivot, or by some fastening between the points of application. See Fulcrum.

Lewis. An ingenious contrivance for securing heavy blocks of stone to the tackle for hoisting.

Leyden Jar. A jar or phial used in electrical experiments. It is an example of a solid dielectric between two conducting substances. By means of this instrument the electric fluid can be accumulated and preserved in large quantities. So named from Professor Muschenbroek, of Leyden.

Life-boat. See Vessel.

Lifter. The part of a steam-engine which raises the puppet-valve. "Lifting-rod," a rod receiving motion from a vibrating shaft called the rock-shaft, and imparting motion to the lifter.

Link. Any intermediate piece transmitting power in a machine. "Link-motion," eccentric-wheels and their rods, connected by a piece called the link, a part of valve-gear for reversing the steam when the engine is in operation.

Loadstone. See Magnet.

Lock. In smith-work, a kind of fastening, and a masterpiece of that class, as a great deal of art and delicacy is required in contriving and varying the wards, springs, bolts, etc. The principle of all modern locks is the application of a lever to an interior bolt, by means of a communication from without; so that, by means of the latter, a door or lid may be made secure from any push or pull from without.

Locomotive-engine. The well-known wheel-carriage operated by steam, and employed to draw loads in transport overland, especially on railways.

Loom. A machine or frame-work of wood or metal, for manufacturing cloth by interweaving a series of parallel threads, which run lengthwise, called the warp, with another series of threads which run transversely, called the woof or weft, by means of the shuttle.

Low-pressure. A term applied to a steam-engine, the motive force of which is produced by forming a vacuum within the cylinder by drawing off the steam into another vessel called the condenser, and there condensing it.

Machine. An engine composed of several parts, put together by mechanical art and contrivance, for the purpose of raising bodies, assisting, regulating, or stopping their motions, etc.

Machinist. See under the head Mechanic.

Magic Lantern. A species of optical instrument, by means of which are represented on an opposite wall in a dark room, figures, magnified to any size at pleasure. The contrivance consists of a common lantern with a candle in it, to which is added a tube, and a lens that throws the light on the object, and another lens which magnifies the image on the wall. Then by contracting the tube, and bringing the glass nearer the object, the image will be enlarged. See Safety-lamp.

Magnet (Natural). A species of iron ore, called loadstone, and found in various parts of the earth in irregular or crystalline fragments, and occasionally in beds of considerable thickness. Its property of attracting small pieces of iron was recognized at a very early date by the Greeks, and its wondrous directive power has been known to the inhabitants of China from time immemorial.

Magnetism. The attractive and repulsive power of the loadstone; generally, that peculiar property possessed by many mineral bodies, and by the whole mass of the earth, through which, under certain circumstances, they mutually attract and repel one another, according to determinate laws.

Mainspring (of a Watch). A thin flexible ribbon of steel, usually about sixteen or eighteen inches in length, which, when coiled into the barrel ready to be placed in the watch, occupies a space something less than three-fourths of an inch in diameter.

Malleability. That property of metals which permits them to be beaten out under the hammer or extended in any way beneath pressure. Gold (which see) is extremely malleable; it can be beaten 1,200 times thinner than ordinary writing-paper. Iron has been rolled into sheets the 2,500th of an inch in thickness, and a square inch of the leaf only weighed three-quarters of a grain. The property of malleability appears to bear some relation, though not that of perfect proportionality, to the ductility. Thus, the following is the order of several metals at ordinary temperatures for these two qualities:

Ductility.	*Malleability.*
Gold.	Gold.
Silver.	Silver.
Platinum.	Copper.
Iron.	Tin.
Nickel.	Platinum.
Copper.	Lead.
Zinc.	Zinc.
Tin.	Iron.
Lead.	Nickel.

Malt. See Brewing.

Mandrel. A wooden pulley and contiguous parts in lathe machinery.

Man-hole. An opening through which a man may creep into a steam-boiler, etc., to clean or repair.

Marble. A term applied by mineralogists to limestone, white or colored, capable of receiving a polish.

Masonry. The art of hewing, cutting, or squaring stones, and fitting them for the use of buildings; also of joining them together with mortar. A wall built of unhewn stone, whether it be built with or without mortar, is called rubble wall. For Brick-work, see under the head of Bricks.

Matrix. The cavity in which anything is formed, and which gives it shape; the mold or form in which printers' types are cast,—called also, matrice.

Matter. See Case.

Mattock. See Ax.

Mechanic. One who works with machines or the instruments of a mechanic. An artificer (which see) is a superior mechanic. A skilled mechanic is an artificer. "Machinist," one who makes machines, or who is skilled in their construction.

Mechanical Effect. A term given to the measure of effective power. It is the power to raise a certain weight through a foot space in a definite time.

Mechanical Philosophy. The science of mechanics applied to physical inquiries; or, on the other hand, the application of the laws of general science to the improvement and construction of machinery.

Mechanical Powers. Six standard machines which are capable of applying large forces to produce small effects with economy, and small forces to produce great effects in time, and which are further capable of transferring forces from their natural point of action, to another point of application. They are the lever, the wheel and axle, the pulley, the inclined plane, the wedge, and the screw. In reality, there are only two mechanical powers, for the pulley and wheel are only assemblages of levers, and the wedge and screw are inclined planes.

Mensuration. The art of measuring lines, superficies, and solids, which, in consequence of its extensive application to the purposes of life, is considered as of the greatest importance.

Merchant. In England, one that exports and imports merchandise. In the United States, the term is applied to large dealers generally. "Merchant-bar," certain common sizes of wrought iron and steel bars.

Metal. A simple body of peculiar luster, insoluble in water, fusible by heat, and capable, in the state of an oxide, of uniting with acids, and forming with them metallic salts. Metals are distinguished, in different degrees, by malleability, ductility, fusibility, tenacity, elasticity, and crystalline texture. The principal metals are gold, silver, iron, lead, zinc, copper, tin, nickel, and antimony; but there are many others.

Metallurgy. The art of working metals, particularly the art of extracting them from their ores and adapting them to various processes of manufacture.

Mezzotinto. A particular kind of engraving, so-called from its resemblance to drawings in India ink. The work is performed by punching a copper surface with a grounding tool, scraping with a scraper, and then burnishing, to produce the effect desired.

Microphone. A very sensitive instrument of the telephone species, for making audible the most feeble sounds.

Microscope. An optical instrument which magnifies objects, so that the smallest may be distinctly seen and described.

Mill. Originally a machine used for dividing, crushing, or pulverizing any substance; but more extensively applied in modern times to almost all machinery consisting of wheel-work, whether intended to change the form or the position of the object to be operated upon. Machines of this kind, therefore, take their name from the processes for which they are used, as saw-mills, stamping-mills, fulling-mills, grinding-mills, etc.; from the motive power, as wind-mills, water-mills, steam-mills, hand-mills, etc.; or from the material operated on, as cotton-mills, paper-mills, sugar-mills, flour-mills, oil-mills, etc.

Mine. An opening in the ground from which anything is dug. The underground works constitute the mine, but the term usually comprehends all the ground on the surface, together with the steam-engines, water-wheels, and other machinery and appendages for drainage, the extraction of ores and their mechanical preparation, with various buildings and erections.

Mineral. A body or substance found in the crust of the earth. Minerals are those bodies which are destitute of organization, and which naturally exist within the earth or at its surface. Mineral waters are springs impregnated with mineral substances.

Minion. See Brevier.

Miter. The joint formed by the ends of two pieces of rule, as in printing, or of molding, as in architecture; an angle just forty-five degrees, or half a right angle.

Model. An original pattern, or the shape or design of anything in miniature; particularly as applied to an artificial pattern made in hard wood or metal—not more than twelve inches in any dimension, as required by law in the United States—and with all its parts and proportions, in order to give a full idea of the work that is to be executed.

Modillion. The bracket-like ornament under the cornice of the Corinthian entablature.

Module. See Ionic order.

Molar. In mechanics, a mass of matter, as contradistinguished from molecules.

Mold. See Casting, and Matrix.

Moldings. Projections beyond the naked wall, such as cornices, door-cases, etc., which are cut so as to be ornamental.

Momentum. The quantity of motion in a moving body.

Monkey-wrench. An article having a movable jaw, and which may be set by means of a screw to span anything which it is desired to move from position by turning or wrenching.

Mortar. Lime, sand, and hair mixed together, so as to make a cement. See Cannon.

Mortise. A kind of joint consisting of a hole of a certain depth cut in a piece of timber so as to receive another piece called the tenon, which see.

Mosaic. A kind of ornamental work in which small pictures are represented by bits of colored marble, pebbles, glass, etc., cemented on a ground of stucco, and then polished.

Motion. The laws of motion, as delivered by Sir Isaac Newton, are: 1. Every body perseveres in its state of rest, or uniform motion in a right line, until a change is effected by the agency of some external force. 2. Any change effected in the quiescency or motion of a body is in the direction of the force impressed, and is proportional to it in quantity. 3. Action and reaction are equal and in contrary directions. See Parallel Motion.

Mould, and Moulding. See Mold, etc.

Moving Powers. The principal moving powers are the strength of man and animals, wind, water, steam, weights, springs, and magnetism. The ordinary strength of a man is estimated at the one-fifth of that of a horse. A horse can draw 200 pounds over a pulley eight hours a day, two and a half miles an hour; if the weight be 240 lbs. he can only work six hours a day, and slower. Wind moving at about 12½ feet a second, will strike a surface of a square foot with a force equal to two ounces. Water falling two feet, with a velocity of eleven feet a second, will turn a wheel so as to give motion to a four-foot six-inch diameter millstone at a rate of 120 revolutions in a minute, the wheel moving with a third part of the velocity of the water. A cubic inch of water, forming into a cubic foot, or 1,728 inches of steam, possesses an elastic force of fifteen lbs. on the square inch, at a temperature of 212 deg.; at 250 deg., thirty lbs.; at 270 deg., forty-five lbs.; and at 290 deg., sixty-six lbs. Weights are applied as the motive power of clocks and other machines, as also are springs, which, like weights, have to be wound up after being expended. If a bar of soft iron, in the form of a horse-shoe, or rather that of a common door-staple, be wrapped round with copper wire, and a current of electricity passed through the wire, the iron becomes a most powerful magnet, called an electro-magnet, and may be constructed so as to bear the weight of many tons.

Mule. A machine used in cotton-spinning, called also mule-jenny.

Mullion. The pieces or strips that form the divisions between the lights of windows.

Nail. Spikes of iron and brass, having heads, and fitted for binding several pieces of wood

together. "Hob-nail," a nail with a thick, strong head, as used in shoes of horses, etc.

Nautical. An epithet for what belongs to the navy or navigation.

Nave. The body or middle part of a church, or other large building, between the aisles, and reaching from the rail or baluster of the choir to the chief door.

Navigation. As a mechanical art, consists of an account of the methods of handling a ship by means of its sails, etc., so that she pass through the waters along a certain definite course.

Negative Electricity. That state of bodies, in which they are deprived of some portion of the electricity which they naturally contain.

Newel. The post or standard around which a circular staircase is built.

Nickel. A metallic substance, mostly found in a metallic state, but sometimes in that of an oxide. Its ores have a coppery red color.

Nodule. A rounded regular lump or mass.

Nonparcil. The smallest size of body type except three, namely, agate, pearl, and diamond.

Nozzle. See Port.

Nut. A piece of iron, or other material, square or hexagonal, having a concave or female screw, used for tightening a bolt.

Object-glass. In the telescope or microscope, the lens or system of lenses nearest the object contemplated.

Oils. A name given to three different classes of bodies: 1. The fixed oils, such as linseed, sperm, and castor oil; 2. the essential oils, as oil of lavender, of rue, of nutmeg, etc.; 3. the mineral oils, which are hydrocarbons, more or less impure. See Petroleum.

Oil-box, etc. A box or cup at the top of an oil-hole, for oiling the machinery. "Oil-cellar," a reservoir for a lubricator in a journal-box.

Order. The rule of proportion to be observed in the construction of any building, which is applied mostly to the column and the entablature, from the diversity in which have sprung the five several orders—the Doric, Ionic, Corinthian, Tuscan, and Composite. See Architecture.

Ordnance. A general name for heavy weapons of warfare. See Cannon.

Organ. A wind instrument blown by bellows, and containing numerous pipes of various kinds and dimensions, which, for its solemnity, grandeur, and rich volume of tone, is peculiarly fitted for the purpose for which it is commonly used. The organ in the cathedral church at Ulm, in Germany, is said to be ninety-three feet high and twenty-eight broad, its largest pipe being thirteen inches in diameter, and it having sixteen pair of bellows. This organ is exceeded in size by the one constructed for the Royal Albert hall, in London, which has 111 complete registers and 138 draw-stops.

Oscillation. In mechanics, the vibration, or reciprocal ascent and descent of a pendulous body.

Overshot Wheel. A wheel, the circumference of which is covered with cavities, and which is turned by water flowing on the top of it. "Undershot wheel," a water-wheel, moved by the water passing beneath it.

Pack. To fill in and around with some material, so as to make certain cavities in machinery air-tight or water-tight; as, to pack the piston of a steam-engine, water-faucet, and the like.

Packfong. An alloy of nickel, zinc, and copper, much used by the Chinese for ornamental purposes. It is similar to German silver in composition and appearance.

Padlock. A kind of lock to hang on the outside of a door.

Painter. An artist who represents objects by colors, as a portrait-painter; also an artist who lays colors on wood or stone, etc., as a house-painter.

Panel. Raised margins, in apartments, as in ceilings, wainscotings, etc. In joinery, a board inserted in the frame of a door. In masonry, a face of a hewn stone; and in mining, a heap of ore ready for market.

Parallel Motion. A contrivance of Watt's for converting rectilinear into circular motion. The piston-rod, whose motion was the source of moving power, went straight up and down, and it was attached to the beam, which, being fixed at its center, described a circular arc. It was impossible, therefore, that this circular arc should be accurately described if the beam and piston-rod had been directly connected. The contrivance through which they are connected indirectly, so as to convert the rectilinear into the circular movement, is called the parallel motion. See Motion.

Parquetry. Inlaid flooring.

Party-wall. A wall that separates two houses, or tenements; as in a block.

Patera. A round ornament frequently worked in relief on friezes, etc. See Frieze.

Pattern. The model of full size around which a mold of sand is made, to receive the fused metal.

Pawl. A catch, or ratchet.

Pearl. Printing-type, in size smaller than agate, and larger than diamond.

Pedestal. The lowest part of a column. In mechanics, same as axle-guard, which see, under the head of Axle-box.

Pediment. A low pinnacle, serving to crown a frontispiece, etc.

Pendulum. One of the principal moving powers, consisting of a heavy body so suspended that it may vibrate or swing backward and forward.

Perambulator. An instrument for measuring distances, otherwise called a pedometer, or surveying wheel.

Perpetual Motion. In mechanics, declared to be impossible on account of friction.

Petroleum. Rock oil, a liquid, bituminous substance, which distils from rocks.

Pewter. A compound metal, or an alloy of tin with copper, lead, zinc, bismuth, and antimony.

Phonograph. A machine for registering sounds. A sheet of tin-foil is stretched around a cylinder, which is indented by a marker that vibrates in correspondence with the sounds made before a speaking-tube. The cylinder is turned steadily while the sounds are being recorded on the thin metallic sheet. By this means any song, speech, or other characteristic of sound, may be recorded and the record preserved to be reproduced through the phonograph at any time afterward.

Photography. See Daguerreotype Process.

Pica. A variety of type of two sizes—pica and small-pica—larger than long primer.

Pick. A well-known iron tool tapering to a point from a head, in which is fixed a wooden handle. It is used for loosening ground, in digging, mining, etc. "Pick-ax," a pick with a point on one end, and a blade at the other, with a wooden handle inserted between. See Ax.

Pig-iron. See Bessemer's process, etc.

Pilaster. A square pillar.

Pile. A large piece of timber, hewn off at one end and driven into the earth, as in a river or soft ground, for the support of a bridge or other superstructure. "Pile-driver," a machine for driving piles or stakes in the beds of rivers, etc. "Screw-pile," see under the head of Screw.

Pillow-block. Same as Journal-box, which see.

Pin. Anything in the shape of a pin, short shaft, or bolt, which serves to fasten. "Pin-drill," a drill with a central point or projection, to drill in a small hole and make it larger.

Pinch. A lever, rather foot-shaped at one end, the heel of which acts as a fulcrum, and serves to move heavy wheels, etc. "Pinchers," a sort of tool used by artificers in drawing nails.

Pinion. An arbor, or spindle, in the body of which are several notches to catch the teeth of a wheel that serves to turn it round; or a pinion in a small wheel which plays in the teeth of a larger.

Pipe. A tube used as a conductor of water, gas, steam, smoke, etc., made of lead, iron, stone, pottery, wood, India rubber, gutta-percha, etc. The large water and gas pipes are made principally of cast iron, and are called mains; the smaller ones of some alloy, of which lead is the base, are called services.

Piston. A solid beam whose lower part performs the office of a cork closing the body of a cylindrical vessel in which it moves, wherever it is applied along the length. To this, in the center, a rod is fastened, which rises or falls with it; and with this rising or falling, the motion of the machines which use the piston, is connected directly.

Pitch. In wheel work, the space between the centers of two adjacent wheels. "Pitch-line," a line which passes through the centers of all the teeth of a wheel. "Pitch-wheels," wheels that work together.

Pivot. The extremity of the axle round which a body revolves.

Plane. An edged tool for paring and shaving wood smooth. "Planer," a wooden block used by printers for forcing down type in a form. For Inclined Plane, see under that head.

Plaster. See Mortar.

Plaster of Paris. A paste made of gypsum. In London the term is also applied to gypsum itself.

Plate. A copper-plate for printing on; any flat piece of metal in the same form or shape. "Plating," see Electro-plate. "Platen," the flat upper part of a printing press which gives the impression.

Platinum. A metal so-called on account of its silvery appearance or from the river Plata, in South America, near which it was first found. It is the heaviest substance in nature; will not fuse with the strongest heat of the furnace; and from its capacity of resisting oxidation in air or water, it constitutes one of the perfect metals. It is harder than iron, and malleable and ductile like gold.

Pliers. An instrument by which anything is laid hold of, so as to bend it.

Plinth. A large square member, in the form of a brick, and sometimes called the slipper. It is employed as the foot or foundation of columns, being that flat square table under the moldings of the base and pedestal, at the bottom of the whole order. The plinth of a wall is a term applied to two or three rows of bricks advancing out from the walls; or, in general, from any flat high moulding, serving in a front wall to mark the floors, or to sustain the eaves of a wall and the larmier of a chimney. See Bricks.

Plow. A well-known agricultural implement for turning up the soil in preparation for receiving the seed. It consists of a wooden frame, with a handle; a share, or sharpened piece of iron, fixed on the bottom of the plow, and a coulter, another cutting iron, that stands upright in the plow. "Wheel-plow," a plow with one or more wheels, to render it steady, and also to regulate the depth of the cut. "Plow-share," the cutting iron fixed at the bottom of the wood-work of the plough, which forms the furrows. Among bookbinders, a plough is a machine for cutting the edges of books.

Plug. A piece of wood or other substance used to stop a hole. "Plug-rod," in a steam-engine a rod for working the valves, as in the Cornish engine.

Plumbago. See Black-lead.

Plumber-block. A support for the end of a shaft.

Plumb-line. A perpendicular to the horizon, formed by means of the plummet. "Plummet," a leaden weight attached to a string, by which depths are sounded perpendicularly, and perpendiculars are taken by carpenters, masons, etc.

Pneumatics. That branch of physical science which treats of the mechanical properties of elastic fluids, and principally of atmospheric air.

Point. Among artists, an iron or steel instrument used for tracing designs on copper, wood, stone, etc. In masonry, to fill the joints with mortar, and smooth them with a trowel.

Pole. A long bar of wood, cut and fitted for various purposes, as the pole of a carriage. "Pole-ax," an ax fixed to a pole or handle, frequently with a claw or hook projecting from the back part, sometimes used in vessels of war for boarding purposes.

Polychrome Printing. The name sometimes applied to the reproduction of paintings and colored drawings by mechanical means. The effects sought by polychrome printing may be obtained both by lithography and wood-cut printing, although the former process is, up to the present time, the one most generally adopted. The imitation of drawings and paintings by means of lithography is usually termed chromo-lithography.

Polychromy. A term applied to the art of painting works of sculpture and architecture with different colors, an art well known to the ancients under a different name.

Polygon. In mechanics, when a series of more than three forces act in equilibrium in one point, they may be represented in direction and intensity by a polygonal figure (a plane figure of many angles); this figure is termed the polygon of those forces.

Polygraph. An invention for making a number of writings or drawings simultaneously,—made on the principle of the Pantagraph, an instrument for copying drawings.

Polytechnics. The science of all the mechanical arts, aided or unaided by machinery.

Pontoon. See Bridge.

Port. In mechanics, an opening through which steam, air, etc., may pass to the valves of the engine to which it imparts motion. The admission and discharge of steam in a steam-engine take place through ports near the ends of the cylinder, connected with passages called nozzles, which are opened and closed by induction and eduction valves. Sometimes the induction and eduction valves are combined in one valve, called a slide-valve.

Post-mill. A kind of wind-mill constructed on a vertical axis fastened to the ground.

Power. A term equivalent to force, or rather to the origin of force; a mechanical agent, as horse-power, water or steam-power, etc.

Press. A machine by which things are compressed. It acts by means of the screw, and serves for different purposes, as for pressing the juice out of grapes and other fruits for making wine, the pressing of the curd in making cheeses, etc.; also, a machine used by printers and publishers for taking impressions of forms of type.

Primer. A kind of type, of which there are two species—long-primer and great-primer.

Priming. The act of carrying over water from the boiler into the cylinder of a steam-engine.

Printer. One who possesses the skill to set up jobs, make up forms, etc., in addition to serving as compositor, or type-setter on straight or plain reading matter. See Case.

Puddling. A process for the conversion of cast iron into wrought iron.

Pug-mill. A mill for grinding and mixing clay, used in brick-making and for other purposes.

Pulley. One of the simplest of the mechanical powers. In its plainest form, it consists of a small wheel turning on a pin in a block, with a furrow or groove cut in its circumference, over which passes the rope that turns it. See Mechanical Powers.

Pump. A machine either for raising water or for forcing it through pipes. Its power is drawn from the pressure or weight of the atmosphere in common cases, and from the elasticity of compressed air in those forms of it that are termed forcing pumps. The lifting-pump and the suction or household pump have each a piston and two valves, which latter open upward. The forcing-pump is unlike the two pumps above-named. The piston has no valve, but there is a valve opening upward at the bottom of its cylinder.

Punch. A tool, usually of steel, for striking holes in any thin material, as leather, iron, etc.

Puppet-valve. A disk, used in steam-engines to cover and uncover an opening.

Putlog. A cross piece of timber forming a support to the floor of a scaffold.

Quadrant. The fourth part of a circle. A quadrant is divided into ninety equal parts, called degrees; each degree is divided into sixty equal parts, called minutes; each minute into sixty parts, called seconds. The ancient form of astronomical instruments for the determination of altitudes was the quadrant; but that has now been wholly superceded by the Circle, which see.

Quadrat, Em. In type-setting, a square piece of metal, shorter than a letter, which is inserted by the compositor, in the body of reading matter, just after a period or end of a sentence. It is, in composition, the standard of measurement, and when the compositor has filled a space equal to 1,000 ems in juxtaposition, he is paid accordingly.

Queen-post. One of two posts extending from the tie-beam to a rafter, used in a trussed roof.

Rabbet. A cut made in a board to form a joint with another board. A rabbet-plane is used by a joiner in cutting a rabbet on the edge of a board.

Rack. A toothed bar to work with a small cog-wheel or pinion.

Rag-bolt. An iron-pin, barbed, so that it may be retained in position. "Rag-wheel," a wheel with projections on the circumference to receive the links of a chain which works with it.

Rail. A long bar of iron rolled in a certain shape, for use in railway construction. "Chair," a piece of iron made to receive and support a rail, and which rests on the tie or sleeper of wood to which it is fixed.

Ratchet. A wheel having angular teeth, by which it may be turned forward as by a catch or ratchet.

Reaction. Action and reaction are equal and opposite. In mechanics, the force as illustrated by the firing of a pistol, there is a back effect upon the pistol identically equal to that upon the bullet. "Reaction-wheel," a water-wheel having curved spaces or buckets on which the water reacts, and thus causing motion.

Receiver. The vessel from which the air is exhausted in an air-pump.

Reciprocating Motion. An epithet for what acts by alternation, backward and forward, or up and down, as some parts of machinery.

Reduction. In metallurgy, the operation of separating a metal from other substances. "Reduction of a design or draught, etc.," the making a copy thereof either larger or smaller than the original.

Reel. A machine turning round on an axis, on which lines of different kind are wound.

Reeming-iron. See Calking-iron.

Refine. To purify anything, but particularly to assay or refine gold and silver, by separating all other bodies from them.

Register. In type-founding, one of the inner parts of the mold in which the printing types are cast. Its use is to direct the joining the mold justly together again, after opening it to take out the new cast letter.

Reglet. A little flat, narrow molding in panels, etc. In job-printing, small strips of wood for use in spacing between lines of type.

Regulator. In a watch, a small spring belonging to the balance. In a steam-engine, the throttle-valve.

Relay. See Battery.

Release. The opening of the exhaust-port between strokes, in a steam-engine, in order to diminish the back-pressure.

Relief. The projection or standing out of a figure above the ground or plane whereon it is formed. There are three kinds of relief, namely, the bass-relief, in which the work is raised but little; the demi-relief, in which one-half of the figure rises, and the alto-relief, in which the figure projects as large as life.

Renaissance Architecture. A term applied to that period of the Revival when the classical began to be again introduced after the mediæval styles. See Architecture.

Resin. A solid inflammable substance exuding from trees, as the common resin, or turpentine, from the pine. "Resins," an important class of vegetable substances, extensively used in manufactures, obtained from various trees. They are mostly insoluble in water, but dissolve readily in alcohol, forming varnishes. They are, as solids, transparent, and brittle. They are insulators of electricity, and become electrical by friction.

Resistance. The energy with which materials resist the action of external weights or forces tending to bend or break them.

Resolution. In mechanics, the dividing of any force or motion into several others in other directions, but which, taken together, shall have the same effect as the single one.

Retort. A chemical vessel in which distillation is effected by means of heat. Retorts are made of glass, earthenware, or metal, according to the purposes for which they are intended. Very large earthenware retorts are used in the manufacture of coal gas.

Reverse. In engineering, to cause to revolve in the opposite direction, as the crank of a steam-engine.

Rib. In carpentry, any piece of timber that strengthens the side. In shipbuilding, the timber of the futtocks, when the planks are off, which resembles the ribs of the body. The frame or ribs of a ship is composed of a great amount of timber, technically catalogued as floors, cross-lines, half-floors, floors short and long-armed, first-futtocks, second, third, fourth and fifth futtocks, and top timbers. The middle timbers fixed between the floor and upper timbers, are called futtocks.

Relievo. See Relief.

Riglet. See Reglet.

Ring-bolt. (See Ring.) "Ring-head," a contrivance used for stretching woolen cloth.

Rivet. A metal piece clinched at both ends.

Rock-shaft. A shaft for varying motion in the valve-gear of a steam-engine, called also rocker and rocking-shaft, from its rocking or vibrating instead of revolving.

Rolling-mill. A machine for working metals into plates or bars. This sort of mill is chiefly used for drawing out the iron bars, after they have been manufactured into bar iron by the forge and hammer.

Rotary. A term applied to turning, as a body on its axis. Hero, of Alexandria, probably first wrote of mechanism, in which heat is made to perform work by means of steam. That author describes a rotary engine, driven by the reaction of jets of steam issuing from orifices in revolving arms. Rotary or centrifugal pumps are those in which a rectilineal vertical motion is given to the water to be raised, by means of a wheel rotating with great velocity in a close drum, and receiving its supply through apertures in the side of the drum close to the axis.

Rough-casting. A kind of mortar used as a covering for external walls, which is thrown on roughly, instead of being plastered on.

Rough-strings. In carpentry, pieces of timber fixed under a wooden stairway for its support.

Ruhmkorff's-coil. A machine for inducing electrical currents of great intensity, so-named from the inventor.

Safety-lamp. A lamp invented by Sir Humphrey Davy, with the object of lessening danger of explosion in mines. It rests on the principle that flame, to ignite adequate combustible gases, will not pass through fine wire gauze; although the *light* of the flame easily passes through it.

Safety-valve. An appendage of the boiler of a steam-engine, for permitting the escape of steam before the pressure becomes dangerous. See Valve.

Sandal. See Boots, etc.

Saw. A cutting instrument, formed from a plate of sheet steel, and toothed by means of a press and tools.

Scale. An incrustation in a vessel in which water is heated, as in a steam-boiler, etc. Also, a most useful instrument in accurate drawing, made of any hard material. The principal divisions are half an inch, and the horizontal lines divide it into ten parts, or the twentieth of an inch; while by sloping the lines in the left-hand division, the tenths are divided into tenths of tenths, or 100ths of the half-inch, by progressively ascending or descending. "Scaling-hammer," a hammer for removing scales.

Scantling. A term used to express the transverse dimensions of a piece of timber; and also, in some cases, as a general name for small timbers, such as the quartering for a partition, rafters, purlins, or pole-plates in a roof, etc. All quartering or squared timber under five inches square is designated scantling.

Scarf. The cut ends of each of two timbers to be joined lengthwise. A scarf-joint is the point where the ends of scarfed timbers are joined and secured.

Schooner. See vessel.

Scioptic. A sphere or globe of wood with a hole, in which is placed a lens, so constructed that it may be turned round every way, and used in making experiments in a darkened room.

Scour. To rub and clean by friction. A scouring-barrel is a machine for cleaning scrap-iron, etc., by means of friction.

Screen. In husbandry, an implement which consists of a frame and wire work, with which wheat is cleared of the dust and the dross grain. In architecture, a partition rising, a certain height, as in the Gothic or pointed style, forming beautiful internal features of churches, halls, etc.

Screw. One of the six mechanical powers, consisting of a spiral thread or groove cut round a cylinder; when the thread is on the outside, it is a male or convex screw; but when it is cut along the inner surface of the cylinder, it is a female screw, otherwise called a nut, which see. As a mechanical power, the screw possesses the property of an inclined plane, which see. "Endless screw," a screw consisting of two or more spiral fillets on a rod capable of rotation round its axis; these threads work in teeth on the circumference of a wheel, so that while the revolution of the rod continues the screw keeps moving on its own axis—called also worm-screw. "Hindley's screw," so-named after the person who first used it, is cut on a solid and works on a toothed wheel. "Micrometer screw," a screw for measuring small spaces or angles with great accuracy and convenience. "Differential screw," one convex screw which works in the interior of another convex screw; the latter works in a concave screw, which is fixed, and the former is capable of moving in a rectilinear direction only, being prevented from turning on its axis with the rotation of the exterior screw. "Right-and-left-screw," a screw, the threads of which on the opposite ends run in different directions. "Screw-bolt," a screw with a head on one end, for use in some fixed part. "Screw-jack," see Jack-screw, under the head of Jack. "Screw-pile," a long and powerful pile, presumably of wood, and made so that it may be screwed down firmly in the sand, to serve as a support of a light timber edifice or light-house.

Screw-press. A strong frame having a horizontal bed, and a follower attached to a screw. The screw works up and down in the concavity of the frame, which, when screwed down, presses on the upper surface of the substance operated upon.

Screw-propeller. A steam-vessel propelled by a revolving screw; also the wheel bearing floats, used in the propulsion of steam-vessels.

Screw-tap. In screw-manufacture, an external screw or cutter, used in forming internal screws.

Scribing. In carpentry, fitting the edge of a board to the side of another.

Sculpture. An art which comprehends not only carving in wood, stone, or marble, but also enchasing, engraving in all its kinds, and casting in bronze, lead, wax, etc. See Carving.

Sector. A drawing instrument, having the appearance of a small carpenter's rule marked with scales on every part. The sector is, in principle, an aggregate of a large number of pairs of compasses packed up into one, each piece of the ruler being marked with the same scales.

Separation. In steam-boilers, the act of displacing water from steam.

Service-pipe. A pipe leading from mains to a dwelling, as in water-pipes and the like.

Sewer. A passage to convey water and filth away into the sea.

Sextant. An instrument for measuring angles between objects, the angle by reflection being doubled, so that a sextant measures the third of a circle, or 120 degrees.

Shaft. The bar that carries wheels or revolving parts, as the shaft of a steam-engine. In mining, a hole like a well, which miners make to free the works from the springs that are in them. Also, the body of a column.

Shank. The long and cylindrical part of different things. In founding, a large ladle.

Share. See under Plow.

Shear. A tool made in the form of scissors, for clipping hedges, etc.; also, the bed-piece of a machine-tool, on which a slide-rest is fastened; as, the shears of a lathe, etc.

Sheep's-foot. In printing, an iron hammer with a claw-end.

Sheet-anchor. The largest anchor of a vessel.

Shell. In boiler-work, the barrel and plating.

Shim. A thin piece of metal used in fitting parts.

Shoe. In machinery, a bottom piece used to support a body; a piece on which an object is placed while moving to prevent wear.

Shroud. One of the two round plates at the rim of a water wheel.

Side-lever. In a marine steam-engine, a lever at the side for moving the crank. "Side-pipe," an exhaust extending between the steam-chests of a cylinder

Silver. A well-known precious metal, 10½ times heavier than water, so ductile that wires have been made of it but the 750th part of an inch in diameter, and so malleable that a grain may be beat out into fifty square inches. It is soluble in nitric acid, or aquafortis. See Malleability.

Siphon. A very simple instrument of great use in the arts. In its simplest form, it consists of a bent tube with unequal arms. The short arm is dipped in a vessel of water until the top or curve becomes level with the water, which then flows over down the long arm. The tube can then be raised until the short arm is just below the water, all the rest of the tube being out of it. The flow will still continue.

Sleeve. In machinery, a tubular part in which another part works, to steady a machine.

Slide-rest. A tool-support, in lathe-turning, made to slide on fixed bearings.

Slide-valve. A kind of cup-shaped piece of metal, situated in the steam-chest, and made to slide over openings through which steam passes to the cylinder.

Sliding-rule. A mathematical instrument, to be used without compasses in ganging.

Slip-link. A connection in which some play of the parts is allowed to prevent shock.

Slot. A slit or mortise in a machine to admit another part.

Sluice. Any kind of a flood-gate or trap to retain water for a given time, or in a given direction.

Smiths' Forge. See Blast-furnace.

Smoke-Jack. An engine placed in chimneys and turned by means of the ascending smoke, which answers the purpose of the kitchen-jack.

Snifting-valve. A valve opening outward to the atmosphere. The condenser of a steam-engine is provided with blow-through valves, communicating with the cylinder, usually shut, but capable of being occasionally opened, and with a snifting-valve opening outward, the steam can be blown off to expel air from the cylinder and condenser before the engine is set to work.

Socket-bolt. A bolt which passes through a thimble-shaped appendage in connecting parts.

Sole-plate. The main or bed-plate of a machine; as the sole-plate of an engine.

Spectroscope. An instrument for forming and examining the image (spectrum) of the sun or any other luminous body. It consists of two telescopes arranged on a stand, with the two glasses facing each other. The eye piece of one is removed, and in its place is a narrow slit formed by two strips of metal, which can be so adjusted as to admit a line of light of any desired width. The slit being illuminated, the observer at the other telescope will see a magnificent image of the slit in the form of a brilliant line of light. If a prism be placed between the two telescopes the observer will still see the line of light, if the illumination be by what is called homogeneous light, like that from a sodium flame, for instance. But, if the flame be colored with some other substance, like lithium, for example, the observer will see two bright lines side by side, one yellow from the sodium, and one green from the lithium. The number of substances, and the consequent number of lines, can be increased almost indefinitely. "Spectrum analysis," used to determine the constitution of heavenly bodies, and is based upon the ascertained fact that the heated vapors of certain substances, like iron, manganese, nitrogen, calcium, etc., exhibit certain definite and easily-recognizable lines and colors in the solar spectrum. These having been determined, it is not difficult to determine that when one of the planetary bodies gives similar results in the spectrum it is because of its being composed of similar substances. If Mars, for instance, gives the same lines in the spectrum that iron and nitrogen do when ignited in the electric arc, the inference is that Mars contains iron and nitrogen. A full explanation of spectrum analysis, and the results attained by it, fill the space of several volumes.

Spike. A very large and long nail.

Spindle. A pin or rod, made to rapidly revolve by means of a wheel, on which locks of previously carded cotton or wool are drawn out into threads.

Splice. See Scarf.

Spline. A piece fitting the key-seat of a hub and a shaft, in order to make them revolve together.

Spring. In mechanics, an elastic plate or rod, which is employed as a moving power, or a regulator of the motions of wheel-work; also to ascertain the weights of bodies, or to diminish the effects of concussion.

Spur-wheel. A cog-wheel where teeth project radially from the center.

Square. An instrument used by carpenters and joiners for squaring their work or reducing it to a square.

Stamp. A kind of hammer, raised by water or steam power, for pounding ores, etc.

Stand-pipe. A pipe between a hydrant and a tank, for equalizing the flow of water.

Statics. That subdivision of mechanics which treats of bodies at rest, in opposition to dynamics, which treats of bodies in motion.

Stay-bolt. A connecting bolt, used to prevent opposite parts from bulging out.

Steam. Water in the vaporous or gaseous condition. Water converted into steam occupies more than 1,700 times its former space. Under the pressure of thirty-five pounds on the square inch and at the temperature of 261 deg., steam

exerts a force equal to a ton weight raised one foot. Superheated steam is called steam-gas.

Steam-engine. The first steam-engine which formed the connecting link between the steam-pumps and the modern steam-engines, was invented by Newcomen in 1705. The principal parts of a steam-engine, with their appendages, are: 1. The furnace and boiler. 2. The cylinder with its piston. 3. The condenser with its air-pump (these are wanting in non-condensing engines). In the mechanism of these principal parts may be mentioned (1) the furnace, with its appendages; the boiler, made of iron or copper, and often contains internal flues and tubes, among whose appendages are, the feed-pump; safety-valve; vacuum-valve; water-gauge cocks and water-gauge tube (see Cock, etc.); pressure-gauge; man-hole; blow-off cock, etc.; (2) the boiler and cylinder are connected by means of the steam-pipe, in which is the throttle-valve (see Throttle-valve), etc.; in non-condensing engines, called high-pressure engines, the waste steam discharged from the cylinder escapes into the atmosphere through the blast-pipe, (which see, under the head of Blast-hole); the cylinder cover has in it a stuffing-box for the passage of the piston-rod; the cylinder cover also has a grease cock, to supply the piston with unguent; in some large engines, a spring safety-valve or escape-valve, at each end of the cylinder; to prevent loss of heat, the cylinder is sometimes inclosed in a casing, called a jacket, outside of which is a clothing of felt and wood; double-cylinder engines have two cylinders, the steam being admitted from the boiler into the first cylinder, and then filling the second by expansion from the first; (3) the ordinary condenser is a steam and air-tight vessel of any convenient shape, whose capacity is from one-fourth to one-half of that of the cylinder, and the steam discharged from the cylinder is liquefied in it by a constant shower of cold water from the injection cock (see Condenser, and Injection-water); in the surface condenser the steam is liquefied by being passed through tubes or other narrow passages surrounded by currents of cold water (see Snifting-valve); the condenser has also a vacuum gauge, to show how much the pressure in it falls below that of the atmosphere; the water, the small portion of steam which remains uncondensed, and the air which may be mixed with it, are sucked from the condenser by the air-pump (which see), whose capacity is from one-sixth to one-eighth of that of the cylinder, and discharged into the hot-well (which see), a tank from which the feed-pump, formerly mentioned, draws the supply of water for the boiler; the surplus water of the hot-well in land engines is discharged into a pond, there to cool and form a store of water for the cold-well; in marine engines, it is ejected into the sea; (4) the principal parts of the mechanism are noticed under the headings, Parallel Motion, Shaft, Crank, Connecting-rod (under Piston), Fly-wheel (under Fly), Valve-gear, and Governor. See also Engine.

Steam-gauge. A pressure-gauge, for indicating the pressure of the steam in a boiler. "Steam-pipe," see Steam-engine. "Steam-trap," a vessel so made as to permit the passage of water but retains the steam. "Steam-way," a channel connecting a port with a cylinder. "Steam-winch," a combination for raising weights.

Steam-hammer. A name given to various powerful machines worked by steam. The steam-hammer, invented by James Nasmyth, has a fixed cylinder, and the hammer is attached to the piston-rod by means of bars and a cross-key.

Steel. See under the head of Iron.

Stereotype. One entire solid piece of type cast from an impression in gypsum, of a page composed with movable types.

Stick. See Case.

Still. A large vessel employed in the process of distillation. The common still consists of a large copper boiler, set in masonry, over a furnace, having a head or capital of a globular form which connects it with the condenser or worm-pipe.

Stop-cock. A short tube of brass, intersected by a nearly cylindrical plug so perforated or cut that while in one position it completely prevents the passage of fluid through the pipe, it may be turned so as to permit the fluid to pass through it.

Strap, and Strap-head. See Butt.

Stress. Applied force or pressure in any direction or in any manner. A stress may be applied to a solid body in order to determine its ultimate strength, which latter depends upon the stress required to produce fracture in some specified way. The elastic strength is the stress required to produce the greatest strain of a specific kind, consistent with perfect elasticity. A body is said to be perfectly elastic which, if strained at a constant temperature by the application of a stress, recovers its original volume, or volume and figure, when such stress is withdrawn, and gives out, during such recovery, a quantity of mechanical work exactly equal to that originally exerted in producing the strain.

Stroke. The movement of the piston of a steam-engine from end to end of the cylinder.

Stucco. A composition of white marble pulverized and mixed with plaster of lime. It is used on walls, or in making ornamental figures.

Stud-bolt. A bolt with threads on each end, to be screwed into a part and capped with a nut.

Stuffing-box. See Steam-engine.

Sucker. The piston of a pump.

Suction-pump. See Pump.

Sugar-mill. A machine for pressing out the juice of the sugar-cane. It consists of several rollers, between which the cane is passed.

Sump. In metallurgy, the pit for receiving the metal on its first fusion.

Swivel. A link that turns round on a pin or neck in any direction.

Table. In machinery, that part on which work is placed to be operated upon.

Tachometer. An instrument for measuring the speed with which vessels pass through water.

Tambourine. See under Bandore.

Tangent. A line touching a circle or other curve without cutting it.

Tap-bolt See Screw-bolt, under head of Screw.

Telectroscope. An apparatus intended to reproduce telegraphically at a distance the images obtained in the camera obscura. This apparatus will be based on the property possessed by selenium of offering a variable and very sensitive electrical resistance, according to the different gradations of light. Plan submitted by M. Senlecq, of Andres.

Telegraph. A word signifying writing to or for a distant point, and applied to the various inventions for communicating news between points by flags or other means. "Electro-magnetic telegraph," an instrument or apparatus for communicating words or language to a distance by means of electricity.

Telephone. An instrument for conveying information by sound, now extensively used in cities and towns. "Musical telephone," a machine for reproducing musical sounds. The music of the Edison machine is brought out by the action of a current of electricity upon a solution of sulphate of sodium in which strips of white paper are soaked.

Telescope. An optical instrument, consisting of a tube which contains a system of lenses, designed to aid the eye in viewing distant objects. "Monocular teleseope," one having a single eye-piece, and so serving only for one eye at once.

Temper. Proper mixture of ingredients. Tempering, in iron works, is making iron and steel of a suitable degree of hardness or softness.

Tenacity. A property of material bodies by which their parts resist efforts to tear them asunder. The tenacity of wood is much greater (apparently about ten times) along the grain than transversely. Mixed metals have, in general, greater tenacity than simple metals.

Tenon. A projecting end of a piece of timber, formed by cutting away a portion on one or more sides, for insertion into a mortise. The tenon is of various forms, as square, dove-tailed, etc.

Tension. The name given to the force by which a bar or string is pulled when forming part of any system, in equilibrium or in motion.

Thermometer. An instrument for measuring heat, founded on the principle that solid, liquid, and gaseous bodies always expand in exact proportion to the temperature to which they are subjected.

Thimble. Any short tubular piece, through which some other part of machinery passes. Iron rings used in the rigging of ships are in some instances called thimbles.

Threshing-machine. A machine for threshing wheat, instead of the old practice of threshing with a flail.

Throttle-valve (or Regulator). A valve in the steam-pipe which connects the boiler and cylinder of a steam-engine, for adjusting the opening for the admission of steam to the cylinder, and sometimes also the cut-off valve or expansion valve, for cutting off the admission of the steam to the cylinder at any required period of each stroke of the piston, leaving the remainder of the stroke to be performed by the expansion of the steam already admitted.

Tie. See under the head of Rail.

Tile. A thin piece of clay in flat form, dried and baked so as to fit it for covering the roofs of houses.

Tiller. A piece of wood fastened in the head of the rudder, by which it is moved. In small ships and boats it is called the helm.

Tilt-hammer. A large hammer worked by machinery. It is tilted by projections on the axis of a wheel.

Tin. A metal of a silver-white color, very soft, and so malleable that it may be reduced into leaves 1-1000th of an inch thick, called tin-foil. Tin is inelastic, but very flexible, when heated to whiteness it takes fire, and burns with a white flame, and is converted into peroxide of tin. The peroxide is found in combination with other metals, in tin-stone, and in loose rounded masses called stream-tin. The former, when reduced to the metallic state, yields block-tin (which see), while the latter yields grain-tin, which is the purer of the two.

Torsion. The force with which a string or thread returns or tends to return to a state of rest, after it has been twisted.

Traction. In mechanics, the act of drawing a body along a plane, usually by the power of men, animals, or steam; as when a vehicle is drawn on a roadway by means of a traction engine. The power exerted in order to produce the effect is called the force of traction.

Trammel. An instrument used by carpenters for drawing ovals on a board.

Translation. As distinguished from rotation, consists in the movement of a point from one position to another.

Triglyph. See under Frieze.

Trowel. See under the head of Bricks.

Truck. The frame and wheels, etc., of one end of a railway locomotive or car; also, a freight-car.

Trundle. A kind of wheel whose teeth are formed of spindles.

Trunk. A tubular piston-rod.

Truss. A frame of timbers so disposed that if suspended at two given points, and charged with one or more weights in certain others, no timber would press transversely upon another except by timber exerting equal and opposite forces.

Tube. In steam-boilers, a pipe containing water and exposed to the heat of the furnace.

Tumbler. See Hair-spring.

Turbine. A water-wheel attached to a vertical revolving axis. It consists of a drum, upon which are a number of vanes curved in such a way as to allow the water leaving them to go off with the minimum of velocity or power.

Tuscan Order. See Etruscan Architecture.

Tympanum. A drum-shaped wheel, used for raising water.

Type-writer. An apparatus about the size of a sewing-machine for writing by means of type, the operator working keys which correspond to the different letters of the alphabet, etc., in order to make impressions of the type on paper.

Undershot-wheel. See Overshot-wheel.

Universal Joint. A contrivance for joining two shafts endwise.

Valve. An arrangement by which air or any fluid may be alternately admitted into and expelled from a vessel. "Screw-valve," a stop-cock provided with a puppet-valve moved by a screw. "Vacuum-valve," a valve opening inward, to admit air and prevent the boiler of a steam-engine from collapsing if the steam in it should be condensed. See Safety-valve, Slide-valve, etc.

Valve-gear. The series of parts by which a valve is worked "Valvelet," a small valve. "Valve-seat," the part on which a valve moves. "Valve-stem," a rod by which a valve is moved. "Valve-yoke," an appendage of a valve-stem, consisting of a strap, with slide to move it.

Velocity. That affection of motion whereby a movable body is disposed to run over a certain space in a certain time.

Veneer. A thin, long, narrow piece of wood or ivory attached to a piece of other material, for ornamental purposes

Ventilator. A contrivance for supplying fresh and removing vitiated air from houses, mines, and other places.

Vessel. In maritime affairs, every kind of ship, large or small, that serves to carry men or goods on water. "Barge," a boat of state or pleasure, with elegant apartments; also, the name of a flat-bottomed vessel of burden, used on rivers. "Bark," a three-masted vessel; any small vessel. "Brig," a square-rigged merchantman with two masts. "Catamaran," a raft made of three pieces of wood lashed together, a flat-bottomed boat constructed by Bonaparte, and used in war. "Clipper," a sailing vessel built expressly for speed, longer and narrower than other vessels. "Cock-boat," a small boat used on rivers or near the shore. "Cutter," a small boat attached to ships of war; rigged nearly like a sloop, with one mast. "Fly-boat," a long, narrow boat, used on canals. "Frigate," a light built ship of war, from twenty-eight to forty-four guns, fitted for fast sailing. "Galley," a low, flat-built vessel, much used in the Mediterranean sea before the introduction of steamboats. "Gondola," a sort of Venetian pleasure barge. "Gunboat," a boat fitted to carry one or more guns. "Jolly-boat," a yawl-boat. "Junk," a flat-bottomed vessel, of about 100 or 150 tons burden, employed by the Chinese. "Keel-boat," a large, covered boat, with a keel, used on rivers for transportation of freight. "Ketch," a strongly-built ship with a main and mizzen mast. "Life-boat," a small boat constructed with great strength to resist shocks, for preserving lives in cases of ship-wreck or other destruction of a ship or steamer. "Long-boat," the longest and strongest boat belonging to a vessel of war. "Lugger," a small vessel carrying two or three masts and a running bowsprit, upon which lug sails, and two or three jibs, are set. "Merchantman," a trading vessel, employed in the transport of goods; so-called to distinguish it from a man-of war, or vessel used for warlike purposes. "Pinnace," a small vessel having sails and oars, and carrying three masts; also one of the boats belonging to a man-of-war. "Punt," a small flat-bottomed boat, used in repairing ships, etc. "Schooner," a small, fast-sailing vessel with two masts, whose main and fore-sails are suspended by gaffs, reaching from the mast to the stern. "Skiff," and "Skippet," small, light boats. "Skow," a large flat boat. "Sloop," a small vessel with one mast; in the navy, sloops are tenders carrying ten or twelve guns and about thirty men. "Steam-ship," a large vessel, with paddle-wheels and sails. A vessel with a screw is called a screw-propeller. "Tartan," a small coaster, having one mast and a bowsprit. "Xebec," a small three-masted vessel navigated in the Mediterranean. "Yacht," a small pleasure-boat, with sails. "Yawl," a small row-boat.

Viaduct. A bridge, or series of arches, erected for the purpose of conducting a road or railway over a valley or a thickly-inhabited district.

Violoncello. See Bass Viol.

Vise. In smithery, an instrument used for holding fast any piece of iron which the artificer is working upon.

Vis Inertia. The power in bodies that are in a state of rest, to resist any change that is endeavored to be made upon them to change their state. This, according to Newton, is implanted in all matter.

Voltaic Pile. See under the head of Galvanic battery.

Vulcanite. A black, hard, elastic substance, resembling horn in its texture and appearance, and capable of taking a very high polish; is of great use in the arts, for making combs, dental-plates, and hundreds of articles hitherto made in ivory or bone.

Vulcanized India Rubber. A modification of India rubber, discovered by Mr. Charles Goodyear, in this country, by which sulphur is so combined with the rubber as to render it insensible to atmospheric changes. See Vulcanite.

Volute. See under the head Ionic Order.

Warp, and Woof. See Loom.

Warping mill. A machine for laying out the threads of a warp and separating them into two sets.

Washers. Small pieces of metal, placed under a nut to reduce friction.

Waste-pipe. A pipe for the discharge of superfluous water, or water that has served its purpose.

Water-closet. An accommodation with water supply for emptying the basin and discharging the contents.

Water-gauge Cocks and Water-gauge Tube. In a steam-engine, appliances showing the level of the water, so that the engineman may ascertain whether it stands sufficiently high to cover all parts of the boiler exposed to the fire. "Pressure-gauge," an appliance for indicating the pressure of the steam. "Blow-off cock," an instrument for emptying the boiler of water when it is to be cleansed. "Injection-cock," see under Steam-engine.

Water-mill. See Wheel and Axle.

Water-wheel. See Overshot-wheel. "Breast wheel" (under head of Breast), and Turbine.

Weave. See Loom.

Wedge. See Mechanical Powers.

Weight. Anything that is to be sustained, raised, or moved by a machine.

Wheel. See Fly-wheel (under the head of Fly), Mechanical Powers, Moving Powers, and Water-wheel.

Wheel and Axle. A machine consisting usually of a cylinder to which a wheel is firmly united, so that the axes of both are coincident. The capstan, the windlass, and the helm-wheel of a ship are only so many different forms of the same class of machines. Frequently also the axle is made to carry a wheel with teeth on its circumference, in order that, by revolving, motion may be communicated to machinery: such are the wind-mills and water-mills which are employed for grinding corn.

White Lead. See Lead.

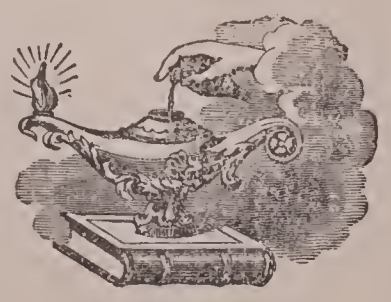
Winch. A small windlass, having a cylinder of wood capable of turning on its axis between two upright posts of the same material. A lever at one or at each extremity of the cylinder is attached to an iron axle which passes through the cylinder by which it is turned. It is used for raising water from a well, earth from the shaft of a mine, etc.

Windlass, and Wind-mill. See Wheel and Axle.

Work. As measured by horse-power. See Horse-power.

Wrought Iron. See Iron.

Zinc. A metal of a bluish-white color, brittle when cold, but malleable when heated; much used in the manufacture of brass and other alloys. It is found in solid masses, sometimes in six-sided prisms, having the ends terminated in pentagons.



PICTORIAL BIOGRAPHIES
—OF—
FAMOUS MEN AND WOMEN

We have selected a number of the most celebrated personages of all times and countries—including the twenty-four Presidents of the United States, and insert herein brief and accurate narratives of their lives. All of them have been, to a certain degree, benefactors of humanity, and their memories deserve to remain, bright and lasting, in the minds of all.

Adams, John, the second President of the United States, was born in Massachusetts, Oct. 31, 1735, and died there July 4, 1826. He was a member of the first Continental Congress, and was prominent during the revolutionary period. He was elected president in 1796, on the Federalist ticket, the electoral votes standing: John Adams, 71; Thomas Jefferson, 68; T. C. Pinckney, 59; Aaron Burr, 30. He served four years, and was defeated for re-election by Thomas Jefferson.

Adams, John Quincy, sixth President of the United States, was born in Massachusetts, July 11, 1767, and died in Washington, D. C., Feb. 23, 1848. He was the son of John Adams, the second President. He was a candidate at the presidential election of 1824. There were several candidates none of whom received a majority of the electoral votes. The election was thrown into the House of Representatives, and thirteen States voted for Adams, to seven for Jackson, and four for Crawford. He served one term.

Arthur, Chester A., twenty-first President, was born in Vermont, Oct. 5, 1830, and died in New York, Nov. 18, 1886. He became President in 1881, on the death of Garfield, and served the remainder of his term. He was a lawyer by profession and received a liberal education. He was collector of the port of New York from 1871 to 1878, and was prominent in politics. He was a candidate for renomination by the Republicans, but was defeated by James G. Blaine.

Bismarck, Prince von, a German statesman; born at Schœnhausen, April 1, 1815. He became one of the greatest statesmen Germany ever produced, and succeeded in unifying the German Empire. After King William of Prussia had been crowned Emperor of Germany, Jan. 18, 1871, Bismarck was appointed Chancellor of the German Empire, and was raised to the rank of Prince. He had during the French war of 1870 accompanied the King in his campaigns, and had dictated the terms of peace at Paris. In 1872 the Emperor conferred upon him the order of the Black Eagle, set in diamonds. On the accession of William III. to the throne, Bismarck was retired to private life.

PRINCE BISMARCK.

Buchanan, James, fifteenth President, was born in Pennsylvania, April 23, 1791, and died June 1, 1868. He was a lawyer and of liberal education. He served several terms in Congress, and was sent as minister to England by President Pierce. He was nominated for President by the Democrats and elected in 1856, receiving 174 electoral votes to 114 for Fremont, and 8 for Filmore. This was the first contest in which the Republican party entered, and Fremont and Dayton were its candidates. The quarrel between the North and South was becoming very bitter.

Byron, George Gordon, Lord, a great English poet, was born in London, January 22, 1788. He entered Trinity College, Cambridge, where he remained until 1807, when he took the honorary degree of M. A. The same year he published a small volume of poems entitled "Hours of Idleness." These effusions were marked by some elegance of versification, but a certain class of critics attacked them with an asperity which roused the feelings of the juvenile author to an exertion of talent which few could have anticipated. His poem entitled "English Bards and Scotch Reviewers" is a satire of uncommon vigor, and, as far as the occasion called for it, the lash was well applied. On January 2, 1815, Lord Byron married the daughter of Sir Ralph Noel Milbank, with whom he received £10,000, which he soon dissipated. The same year Lady Byron gave birth to a daughter, but a separation took place almost immediately after. He went to Italy and took up his abode in Venice, from whence he removed to Rome, where he wrote the third canto of "Childe Harold." The revolution in Greece could hardly fail to affect the feelings of a man who had spent a considerable time in that interesting country, and celebrated it in his works. Lord Byron accordingly embarked at Leghorn, and arrived at Cephalonia in August, 1823. He took an active part in the cause of freedom, and advanced large sums to support the Greeks; but while thus engaged he caught a cold, which led to an inflammation of the chest, and brought about his death at Missolonghi, April 19, 1824.

LORD BYRON.

Cleveland, Grover, twenty-second President of the United States, was born in New Jersey, March 18, 1837, his father being a Presbyterian clergyman. He received an academic education, and became a lawyer. He settled in Buffalo and was elected mayor in 1881. In 1882 he was elected governor of New York, by 195,000 majority. He was nominated for President by the Democrats in 1884, and was elected by an electoral vote of 219 to 182 for James G. Blaine. He was renominated in 1888 but was defeated by Harrison, the Republican candidate. Was re-elected in 1892, defeating Harrison.

Columbus, Christopher, the discoverer of a new continent, was born about 1445, at Genoa, son of a woolcomber. In his great fondness for navigation, he made himself perfect in geometry, astronomy and cosmography. After trading in the Mediterranean, he settled at Lisbon, where his brother, Bartholomew, was established, and he increased his knowledge of maritime affairs by several voyages to the Canaries and the coast of Africa. Guided by experience, and encouraged by the correspondence of Paul Foscanelli, a learned Florentine, he became persuaded that a continent must exist in the western ocean. He presented his plans to the Genoese, and afterward to the King of Portugal. In Spain, Ferdinand and Isabella showed him greater attention; and, after many delays, he was per-

mitted to sail in quest of unknown regions. On the 6th day of September, 1492, he left Gomera, with three small ships, and on the 12th of October, after sailing in a westerly direction, he discovered some islands, and landed at Guana Bay, in the Lucca Islands. After visiting and taking possession of the islands of Cuba and Hispaniola, he returned to Spain, which, after a passage of fifty days, he reached in May, 1493. These discoveries astonished the Spanish monarch. Columbus was declared Admiral of the Indies, ennobled, and permitted to return to the new world with a large fleet. In his second voyage he discovered Jamaica and other islands. In May, 1496, he made a third voyage, and discovered Paria, on the continent; but so violent were his enemies, that, in spite of his services, he was sent to Spain in irons in October, 1500; but the monarch liberated him from captivity. He again visited the new world, and died, soon after his return, at Valladolid, May 20, 1506. His remains, by the King's commands, were magnificently buried at Seville, where a short epitaph records his merits: "Columbus gave Castille and Leon a new world."

Cromwell, Oliver, was born at Huntingdon, April 25, 1599. In 1628 he was elected into Parliament where he displayed great zeal against the Established Church. In the Long Parliament he was returned for the town of Cambridge. On the breaking out of the Rebellion he raised a troop of horse, and going to Cambridge, acted there with great severity to the loyal members of the university, for which, however, he received the thanks of the House, and was first raised to the rank of colonel and next to that of lieutenant-general. In the battle of Marston Moor (July 3, 1644), his cavalry obtained the name of Ironsides; and in that of Newbury, which followed soon after, Cromwell made so desperate a charge upon the King's guards, that it decided the fortune of the day. He now became lieutenant-general of the army, and at the battle of Naseby (June 14, 1645), completely ruined the royal cause. When the King was betrayed by the Scotch, Cromwell's agent, Cornet Joyce seized His Majesty at Holmby, June 4, 1647, and conducted him to the headquarters of the army. Charles for some time thought himself safe, but his fears prevailed, and he fled to the Isle of Wight; the history of his re.capture is well known, as the share which Cromwell had in the beheading of the king is established beyond all doubt. In 1649 Cromwell went over to Ireland, which country he completely subdued. The Scots, having now invited home Charles II., prepared for an invasion of England, on which Cromwell entered their country, and, Sept. 3, 1650, gained the victory of Dunbar. On the same day of the month, in the next year, was fought the battle of Worcester, which dispersed the Royalists, and obliged the King to return to France. From this time Cromwell made no secret of his views, and, April 20, 1653, he entered the House of Commons with his soldiers, pulled the speaker out of the chair, bade his men take away that bauble, the mace, and then locked up the doors. The government being now vested in a council of officers solely under his control, he was invited to take upon himself the sovereign authority, and accordingly was proclaimed Protector of the commonwealth of England, Scotland and Ireland. His conduct in this station was vigorous and he applied himself to the management of public affairs with equal diligence and judgment. He died at Whitehall, Sept. 3, 1658; and some days afterward his funeral was celebrated with more than royal pomp in Henry the Seventh's chapel, Westminster Abbey; but after the Restoration the body was taken up, suspended at Tyburn, and buried under the gallows.

Dickens, Charles, one of the most celebrated novelists of the present century, was born at Landport, a suburb of Portsmouth, Feb. 7, 1812. His father became bankrupt, and was imprisoned, and the family removed to one of the poorest quarters of London, whence Charles was sent to work in a blacking manufactory. Many years afterward he wrote, in a remarkable autobiographical fragment which was not published until after his death: "It is wonderful to me how I could have been so easily cast away at such an age. It is wonderful to me that even after my descent into the poor little drudge I had been since we came to London, no one had compassion enough on me—a child of singular abilities, quick, eager, delicate, and soon hurt, bodily and mentally—to suggest that something might have been spared, as certainly it might have been, to place me at any common school." Gradually he triumphed over such terrible difficulties, became one of the reporters of the House of Commons, and wrote his famous short stories under the name of "Boz;" then his great novels came out in succession. His renderings of his best creations, both humorous and pathetic, of his most stirring scenes and warmest pictures of life, will not readily be forgotten. America had an opportunity of appreciating his powers in this direction on the second visit he paid to this country in 1868. He had also a high reputation as an amateur actor, and was one of the founders of the Guild of Literature and Art. He died, after a very sudden illness, at his residence, Gad's Hill Place, near Rochester, June 9, 1870, and was buried privately in the Poet's Corner, Westminster Abbey.

CHARLES DICKENS.

Emerson, Ralph Waldo, LL. D., an American philosopher, born at Boston, May 25, 1803. He graduated at Harvard College in 1821, and was ordained minister of the Second Unitarian Church of Boston, but soon abandoned his profession, and, retiring to the village of Concord, Mass., the home of his ancestors, devoted himself to his favorite study, the nature of man and his relation to the universe. Emerson's health suffered seriously by the shock caused by his house being burnt in July, 1872, and he was persuaded to visit Egypt and afterward London. On his return to Concord in May, 1873, the inhabitants met him at the station with a band of music and escorted him to his home, which meantime had been rebuilt by his friends in exactly its old form. His last appearance in any literary capacity was when, on the death of his friend Carlyle, he read before the Massachusetts Historical Society notes and reminiscences of his great contemporary, written many years before. Died at Concord, April 27, 1882.

Edison, Thomas, a famous American inventor, born in Alva, Ohio, 1847. He had but a brief common school attendance. Educated himself for a telegraph operator; invented first his automatic repeater, next his duplex telegraph, finally the incandescent lamp, the improvements in the telephone, microphone, phonograph, etc.

Filmore, Millard, thirteenth President of the United States; was born in Cayuga County, New York, February 7, 1800, and died in Buffalo, March 7, 1874. He was elected Vice-President, Zachary Taylor receiving 163 electoral votes to 127 for his opponent, William O. Butler. He succeeded Taylor at his death, July 9, 1850, and served out the remainder of his term. He was a lawyer of fine attainments, and served several terms as member of Congress. He was the last Whig who served as President, the party going to pieces a short time thereafter.

Franklin, Benjamin, an American philosopher and statesman, born at Boston, Mass., Jan. 6, 1706. He was well educated under his father, who was a tallow chandler and a soap boiler, and after being engaged in the business, he was bound to his father's elder brother, a printer. Eager after knowledge, he read attentively in the night the works which he had printed in the day. A difference with his uncle removed him from New York to Philadelphia, where he was noticed by the governor, Keith, and encouraged to set up in business for himself. With this view he went to London, but soon discovered that the promises of his patron were perfunctory, and after working as a journeyman printer, he, in 1726, returned to Philadelphia. In 1747 he addressed an account of his discoveries on electricity to his friend Collinson, and explained the aurora borealis, and the laws of thunder and lightning, and not only recommended the guarding of buildings against the effects of storms, by means of conductors, but showed that the lightning from the clouds is the same as the electric fire. Distinguished as a philosopher, he was equally so as a statesman. When the independence of America was acknowledged, Franklin, who was a resident of Paris, signed the treaty of peace in 1783, and advanced the interests of his country by forming new connections with Prussia and Sweden. He returned to America in 1785, and was received as a venerable father; he was made governor of Pennsylvania, and he applied the strong powers of his mind to heal the differences in the State by wise laws and conciliatory regulations. This great man died April 17, 1790, and his countrymen ordered, on the occasion, a public mourning for two months. His discoveries of electricity, and his services in the emancipation of his country, were depicted by the pen of Turgot in this bold line, placed under his portrait: "Eripuit cœlo fulmen, sceptrumque tyrannis." (He wrested the lightning from heaven and the scepter from tyrants.)

BENJAMIN FRANKLIN.

Fulton, Robert, an American engineer and inventor. Born in Lancaster County, Pennsylvania, in 1765. He launched his first steamboat, the Clermont, in 1807. Though Fulton expended a large amount of money upon his invention, which was to revolutionize the world, he made no money out of his patent. Died 1815.

Garibaldi, Guieeppe, an Italian general and patriot. Born of poor parents at Nice, July 22, 1807. He fought for the unity of Italy. During the Franco-Prussian war (1870-71) he led a corps of volunteers to the assistance of Republican France. Died June 2, 1882.

Garfield, James A., the twentieth President of the United States, was born in Ohio, Nov. 19, 1831, and died at Elberon, N. J., Sept. 19, 1881. He received a college education. He served in the civil war, and rose to be major-general. He served several terms in Congress, and in 1880 was elected United States Senator from Ohio. In 1880 he was nominated for President by the Republicans after an unsuccessful attempt to nominate Grant for a third term. He was elected by an electoral vote of 214 to 155 for General W. S. Hancock. July 2, 1881, he was shot by a half-crazy man named Guiteau, and after suffering 80 days died Sept. 19, 1881.

Gladstone, William Ewart, an English statesman and author, the son of a merchant of Liverpool, was born in that city December 29, 1809. He was in 1834 appointed by Sir Robert Peel a junior Lord of the Treasury, and in 1835 Under-secretary for Colonial Affairs. In 1841 he became Vice-President of the Board of Trade, Master of the Mint, and member of the Privy Council. In December of the same year he succeeded Disraeli as First Lord of the Treasury and Prime Minister of England. Numerous important measures were carried out during his administration. He resigned as Premier in 1874. He again became Prime Minister of England in 1880, and continued in politics until 1884, when he resigned the Premiership to take it again in 1892, when he declared himself in favor of Irish home rule. In 1894 he retired from active politics forever.

W. E. GLADSTONE.

Goethe, Johann Wolfgang, the greatest of German writers. Born at Frankfort-on-the-Main, August 28, 1749; died at Weimar, March 22, 1832. He published his first work, "Werther," in 1774. The Duke of Saxe-Weimar called him to his court, 1784, which soon became the intellectual center of Germany. He managed the ducal theater and produced therein the finest plays of Schiller. Then he wrote "Faust," his masterpiece. The rest of his life he was the recipient of the highest honors from all the sovereigns of the world, Napoleon included. His works are many, and all of the loftiest merit.

J. W. GOETHE.

Grant, Ulysses S., eighteenth President of the United States, was born in Ohio, April 27, 1832, and died July 23, 1885. He was educated at West Point and served in the Mexican war. At the breaking out of the civil war he entered the army as Colonel, and rose to be commander of the armies of the North. To him belongs the glory of terminating victoriously the War of the Rebellion (1865). He was elected President in 1868 by an electoral vote of 214 to 80 for Horatio Seymour. He was re-elected in 1872 by an electoral vote of 286 to 66 in opposition.

GEN. U. S. GRANT.

Gutenberg, John, was born near Mentz, 1397. He was bred a merchant, which profession he followed at Strasburg, and also at Mentz, alternately. He is believed to have discovered the art of printing with movable types about 1439; and it is certain that he entered into partnership with Fust, for the prosecution of the art, before 1455, in which year the celebrated Bible was executed by them. Gutenberg died Feb. 24, 1468.

GUTENBERG.

Harrison, Benjamin, twenty-third President of the United States, was born in Ohio, August 20, 1833. He is the grandson of President William Henry Harrison, who was elected in 1840. He received a college education, and removed to Indiana in 1854. He served with honor during the civil war, and at its close returned to Indianapolis. In 1880 he was elected United States Senator from Indiana and served six years. In 1888 he was nominated for President by the Republicans, and after a heated contest was elected, receiving 233 electoral votes to 168 for Grover Cleveland. In 1892 he was defeated for re-election by Cleveland.

Harrison, William Henry, ninth President of the United States, was born in Virginia, Feb. 9, 1773, and died in Washington, D. C., April 4, 1841. He was prominent in the Indian wars, and the war of 1812. He was United States Senator from Ohio in 1819, and was candidate for President in 1836, but was defeated by Martin Van Buren. In 1840 he was again a candidate and elected over Van Buren by an electoral vote of 234 to 60. He was inaugurated March 4, and died, after a short illness, of bilious pneumonia a month later.

Hawthorne, Nathaniel, a master among American authors. His world-famed romance, "The Scarlet Letter," appeared in 1851. He was a man of retiring habits, of pure and lofty imagination, and gifted with a magnificent mastery of the English language. He was for a few years United States Consul at Liverpool. He visited Italy and wrote works of various characters, even some for children. Born 1806; died 1864.

Hayes, Rutherford B., the nineteenth President of the United States. He was born in Ohio Oct. 4, 1822. He received a liberal education and adopted law as his profession. He served with honor during the civil war. He served in Congress and was elected governor of Ohio three times. He was nominated for President by the Republicans, and after a heated contest the result was disputed. The matter was referred to an electoral commission to decide on certain questions, and it resulted in Hayes being declared elected by a vote of 185 to 184 for Samuel J. Tilden. He died in 1893.

Irving, Washington, the son of a merchant of New York, was born there April 3, 1783. He resolved to devote his life to literature, and as a result of this determination the "Sketch Book" appeared in 1819. It was recognized as the product of taste and genius, and even English criticism, until then always scornful of American books, paid homage to its merits. In 1842 he was honored with the appointment of Minister to Spain, and at the end of his official term in 1846 he returned to the United States. He died at his residence, Sunnyside, near Tarrytown, New York, Nov. 28, 1859.

Jackson, Andrew, the seventh President of the United States, was born on the border between North and South Carolina March 15, 1767, and died near Nashville, Tenn., June 8, 1845. He commanded the American forces at the battle of New Orleans in 1814. He was candidate for President in 1824 and received 99 electoral votes, to 84 for Adams, 41 for Crawford and 37 for Clay. The election was thrown into Congress and Adams was elected. In 1828 he was elected President, receiving 178 electoral votes to 83 for Adams. He was elected for a second time in 1832.

Jefferson, Thomas, the third President of the United States, was born in Virginia, April 3, 1743, and died July 4, 1826. He was a member of Congress during the Revolutionary war, and a man of great influence and usefulness. In the presidential election of 1800, no candidate had a majority of the electoral vote, and the election was thrown into the House of Representatives and Jefferson was elected President. Jefferson was re-elected in 1804, receiving 164 electoral votes to 14 for Charles C. Pinckney.

Joan of Arc, the Maid of Orleans, born at Domremy, believed she had a divine commission to expel the English, who, under the Earl of Salisbury, were besieging Orleans. Charles VII. entrusted her with the command of some French troops, and she raised the siege, and entered Orleans with supplies, April 29, 1429, and the English, who were before the place from October 12 preceding, abandoned the enterprise May 8 following. She captured several towns in the possession of the English, whom she defeated in a battle near Patay, June 18, 1429. She was wounded several times herself, but never shed any blood with her own hand. She was taken at the siege of Compiegne, May 25, 1430, and after an infamous trial, the complete records of which are still extant, she was burned as a witch, at Rouen, May 30, 1431.

JOAN OF ARC.

Johnson, Andrew, the seventeenth President of the United States, was born in North Carolina, Dec. 29, 1808, and died in Tennessee, July 31, 1875. He was elected Vice-President with Lincoln, succeeded him after the latter's death, and filled out his unexpired term. He had serious differences with the Republican party in regard to the policy of reconstruction, and was impeached by the House, but on trial by the Senate was pronounced not guilty. He was elected to the United States Senate in 1875, and took his seat at an extra session, but died soon after.

Lincoln, Abraham, sixteenth President of the United States, was born in Hardin County, Kentucky, Feb 12, 1809, being the son of Thomas Lincoln, a laboring farmer. While he was still a boy his father removed to Illinois, and here he began life as a laborer in the bush, building rail fences—a circumstance which gained for him in after years the designation of the "rail-splitter"—and working as a common sailor on the flat boats which navigated the Mississippi. While thus employed he picked up a little learning, and

gave his spare time to reading what books came in his way. He served as captain of militia during the Indian troubles of the Northwest, and in 1834 was elected to the Illinois Legislature. Three years later he was admitted to the bar, and met with much success as an advocate. In 1847 he was elected to Congress, where he supported the Whig party, and became conspicuous as an uncompromising opponent of slavery. The Whig party was broken up soon after the Presidential election of 1852, and two years afterward he appeared as a leader of the newly organized Republican party. He made several unsuccessful attempts to obtain a seat in the Senate. In 1860, however, he was raised to the highest office in the republic. The National Republican convention met at Chicago in June that year, and up to the eleventh hour it was supposed that Mr. Chase, of Ohio, and Mr. Bates, of Missouri, would divide the votes of the western delegates; but they were suddenly abandoned, and Mr. Lincoln was brought forward in their stead. The local pressure from without was so great that he was nominated over Mr. Seward, and elected President in November, 1860. The result of the election was most tremendous. Almost all the Southern States seceded from the Union before the new President was inaugurated. Then came the attack on Fort Sumter, and the terrible civil war, which for four years devastated the Southern States of the Union. At the expiration of his term of office he was re-elected to the Presidency, and lived to see the substantial success of the Federal arms, and the surrender of Richmond and of the army of General Lee. While on a visit to Ford's Theater, at Washington, April 14, 1865, he was shot through the head by an actor named John Wilkes Booth, and died on the following morning.

Longfellow, Henry Wadsworth, the celebrated American poet, was born in Portland, Maine, Feb. 27, 1807. At the age of 14 he entered Bowdoin College, where he graduated in 1825, and was for a few months a law student in the office of his father. Having been offered a professorship of modern languages in Bowdoin College, with the view of qualifying himself for the post he spent three years and a half in traveling in France, Spain, Italy, Germany, Holland and England, and returning to the United States in 1829, entered upon the duties of his office. On the resignation of Mr. George Ticknor, in 1835, of the professorship of modern languages and of belles lettres in Harvard College, Mr. Longfellow was appointed to the vacancy. He gave up his chair at Bowdoin College, and again went abroad, in order to become more thoroughly acquainted with the languages and literature of northern Europe, and having traveled more than twelve months in Scandinavia, Germany and Switzerland, returned in the autumn of 1836 to enter upon his duties at Harvard. In 1854 he resigned his professorship, and was succeeded by James Russell Lowell. Died at Cambridge, Mass., March 24, 1882.

Lowell, James Russell, LL. D., (1819–93), an American poet and diplomatist. He graduated at Harvard College in 1838, and succeeded Longfellow in 1855 as professor of belles lettres in the University of Harvard. His "Bigelow Papers" place him in the first rank of American humorists. He was appointed Minister to England in 1880.

McKinley, William, twenty-fifth President of the United States, was born at Niles, Trumbull County, Ohio, January 29, 1843. Educated at the Poland Academy, he entered Allegheny College in 1860, but left it soon to teach school. In June, 1861, only 18 years old, he entered the Twenty-third Ohio Volunteers as a private and served all through the war, finally receiving a brevet as Major U. S. V. for "gallant and meritorious services in the field." Leaving the army at the close of the war, he studied law and practiced successfully at Canton, Ohio. Elected to Congress in 1876, he represented his district there for fourteen consecutive years. He was the leader in the debates that ended by the adoption of the famous tariff bearing his name (1889). He was elected governor of Ohio in 1891, and again in 1893, and finally, in 1896, was elected President of the United States by 271 electoral votes against 176 given to W. J. Bryan, the candidate of the Democrats, the Populists and the Silverites united.

Milton, John, born in Broad street, Cheapside, London, Dec. 9, 1608.

JOHN MILTON.

His father who was a scrivener, sent him to St. Paul's School, from whence, in 1625, he was removed to Christ's College, Cambridge, where he took both his degrees in arts, and then retired to Horton, Bucks. In 1638 Milton went through France to Italy, and returned home after an absence of fifteen months. He now became a schoolmaster, and while thus employed wrote some furious tracts against the hierarchy. In 1643 he married, but the lady, from some disgust, left her husband about a month after the nuptials and refused to return. On this Milton published treatises on "The Doctrine and Discipline of Divorce," in which he attempted to show that a man may put away his wife for bad temper and other impediments to happiness, besides adultery. He resolved to carry his principles into practice, and accordingly paid his addresses to another woman; this gave alarm to the friends of his wife, and they effected a reconciliation. Milton was much in favor with the ruling party, to whom he recommended himself by vindicating the murder of Charles I. in a piece called "The Tenure of Kings and Magistrates." For this publication he was made Latin secretary to the Commonwealth. Milton's sight, which had long been in a state of decay, now left him entirely; yet he continued in his office, having as an assistant Andrew Marvell. He married a second time in 1652, but at the Restoration he absconded, and caused reports to be circulated of his death, to corroborate which a sham funeral was celebrated. When the danger was over he made his appearance again, and married a third wife. He now employed himself in writing his "Paradise Lost," which was first published in ten books in 1667. For this immortal poem he received £20. His widow subsequently sold the copyright for £8. In 1671 he published "Paradise Regained." Though this poem is not to be compared in any degree to the former, it was preferred to "Paradise Lost," by the author. He died Nov. 8, 1674. A monument in honor of Milton was erected by William Benson in Westminster Abbey, 1737

Monroe, James, the fifth President of the United States, was born in Virginia, April 28, 1758, and died in New York City, July 4, 1831. He was elected President in 1816, receiving 183 electoral votes to 34 for Rufus King. This marked the extinction of the Federalist party. Monroe was re-elected in 1820, almost unanimously, receiving 228 out of 229 electoral votes that were cast. Florida was sold to the United States by Spain during his administration for $5,000,000. The slavery question was first agitated.

Morse, Samuel Finley Breese, the inventor of the electric telegraph, was born at Charlestown, Mass., April 27, 1791, and educated at Yale College, where he took his degree in 1810. He chose the profession of painter, came to England and pursued his art studies under Benjamin West. He won a prize for sculpture at the Royal Academy in 1813, and exhibited a large picture of "The Dying Gladiator," which gained him much applause. Returning to America, he dwelt first at Boston, then in New Hampshire, next at Charlestown, S. C., and subsequently at New York, in which last named city his talent as an artist began to earn its reward. In 1829 he again visited Europe, and it was during his return voyage in 1832 that, in conversation with a fellow passenger, Mr. Morse thought of using the instantaneous passage of electricity through a wire for conveying messages and recording them, five years before the inventions of Wheatstone and Fothergill Cooke, in England, and of Steinheil, in Bavaria, were publicly made known. Mr. Morse thenceforward devoted much of his time to this subject, and in 1835 completed a working model of his "Recording Electric Telegraph," which was patented at Washington. It was perfected in 1840, and in 1844 the invention was brought into practical use on the Baltimore and Washington line, the first in the United States. The Morse system has the advantage of printing every word of the message transmitted in the shape of a variable sequence of dots and strokes marked on a narrow endless strip of paper. Mr. Morse was also the first constructor of a submarine telegraph, having laid one in New York harbor in October, 1842. He held the professorship of natural history in Yale College. Died at New York, April 2, 1872.

S. F. B. MORSE.

Napoleon Bonaparte, the first Emperor of the French, and one of the most famous generals and statesmen that ever lived, was born in the city of Ajaccio, Island of Corsica, August 15, 1769; he died, a prisoner of the British Government, on the island of St. Helena, May 5, 1821. He was educated at the military schools of Brienne and Paris; entered the artillery branch of the service, and helped re-take Toulon from the English (1793). Made a general at 27, he commanded the French armies in Italy, and in a short time defeated the Austrians and their allies, forcing them to sign the treaty of peace of Leoben. He headed a French expedition in Egypt, and conquered the whole country; but the defeat of the French fleet rendered his work useless (1799). On November 10, of the same year, he took forcible possession of the government in Paris, and organized the Consulate, himself

NAPOLEON THE GREAT.

being First Consul for life. His second Italian campaign (1800) forced the Austrians to sign the Treaty of Amiens, and, until 1803, Europe was at peace; then England started war afresh. In 1805 Napoleon entered Vienna; on December 2, same year, he vanquished the Russian and Austrian Emperors at Austerlitz. The next year, after destroying the Prussian army at Jena, he entered Berlin. In 1807 both Prussia and Russia had been forced to accept peace. Napoleon went over to Spain and established his brother Joseph as King in Madrid. After beating the Austrians again at Wagram (1809), he divorced his first wife, Josephine, and was married (1810) to Marie Louise, daughter of the Austrian Emperor. A son was the issue of this marriage; he never reigned. In 1811 Napoleon gathered an immense army for the conquest of Russia. He reached Moscow, which was, however, burned down by the inhabitants, and his troops were almost annihilated by the severe winter of the country. Returning to Paris in 1812, Napoleon gathered new troops—mostly boys from 17 to 19 years old—to fight the European coalition against him. Beaten at the three-days battle of Leipzic, he fought step by step the invasion of the French territory, finally abdicating his office and power and retiring to the island of Elba, on the Italian coast (1814). Just one year later he entered France again, and was enthusiastically received by the people and the troops. His new reign was but one hundred days long, for on June 18, 1815, he was defeated by the united forces of Wellington and Blucher, on the plains of Waterloo (Belgium). Surrendering to the English, he was exiled and imprisoned on St. Helena Island, on the west coast of Africa, where he died, at the age of 52, from cancer of the stomach. As an administrator, a legislator, and a military commander his fame will endure forever.

Newton, Sir Isaac, the prince of philosophers, was born Dec. 25, 1642, at Woolsthorpe, Lincolnshire. His father died before the birth of this child, and the widow took a second husband. Isaac was educated at Grantham School, where he displayed his genius in the construction of several curiosities. His mother, on the death of her second husband, sent him to school again, and, in 1660, to Trinity College, Cambridge. Here he studied mathematics with great diligence, and in 1664 made the discovery of the nature of light and colors. The next year he conceived the idea of the system of gravitation by seeing an apple fall from a tree in his garden. In 1667 he obtained a fellowship in his college, and two years afterward Dr. Barrow resigned to him the mathematical professorship. In 1671 he was chosen a Fellow of the Royal Society, and in 1687 he was one of the delegates appointed to defend the privileges of the University at Cambridge before the High Commission Court. The year following Newton was sent to Parliament by the University, as he also was in 1701. In 1696 he was made warden of the mint, in the discharge of which office he saved the country above eighty thousand pounds by the improvement of the coinage. In 1699 he was appointed master and warden of the mint, which situation he held till his death. On being chosen President of the Royal Society in 1703, he resigned his professorship, and in 1705 he received the honor of knighthood from Queen Anne. He enjoyed his faculties to the close of his long life. His temper also was remarkably even, and he might almost be said to have carried patience too far, particularly in suffering other men to run away with the merit of his discoveries. Sir Isaac was not only a philosopher but a Christian, and spent much of his time in elucidating the sacred Scriptures, nor could anything discompose his mind so much as light and irreverent expressions on the subject of religion. He died March 20, 1727, and was buried in Westminster Abbey.

ISAAC NEWTON.

Pierce, Franklin, the fourteenth President of the United States, was born in New Hampshire, Nov. 23, 1804, and died at Concord, Oct. 8, 1869. He was a lawyer by profession. He served in the Mexican war with distinction. He was nominated for President by the Democrats and elected in 1852, receiving 254 electoral votes to 42 for General Scott, the Whig candidate. During Pierce's term the "Know-nothing" party came into existence. In 1855 it carried nine States and had a candidate for President in 1856. It soon disappeared from politics.

Polk, James K., eleventh President of the United States, was born in North Carolina, Nov. 2, 1795, and died in Nashville, Tenn., June 15, 1849. He was a lawyer by profession, and was elected to Congress from a district in Tennessee in 1825, and re-elected each term till 1839. In that year he was elected governor of Tennessee. In 1841 and 1843 he was candidate for governor, but was defeated both times. He was elected President in 1844, over Henry Clay by an electoral vote of 170 to 105.

Schiller, Johann Christoph Friedrich von, an eminent German poet, dramatist and historian, was born at Marpach, in Wurtemberg, Nov. 10, 1759. He was distinguished in childhood for great ardor of imagination, and one of his favorite books was that of Ezekiel, in the Old Testament, whose prophecies exhibit wonderful strength of fancy, particularly of the terrific kind. The father of Schiller being an officer in the service of the reigning duke, he was sent for education to the military academy at Stuttgart. This situation was by no means suited to his temper and genius. He, however, distinguished himself among his companions, and was at the head of all his classes, and his compositions were marked by that poetical character which denoted the turn of his disposition. His poems soon gained him the patronage of the Duke of Saxe-Weimar, who conferred upon him the title of aulic councillor, and appointed him to the professorship of history and philosophy in the University of Jena. He died of a pulmonary decay at Weimar, May 9, 1805. He had been made, without his solicitation, a citizen of France and a noble of the German Empire. In his private character, Schiller was friendly, candid and sincere. In his youth he affected eccentricity in his manners and appearance.

Scott, Sir Walter, a distinguished poet and celebrated novelist, was born at Edinburgh, August 15, 1771, being the son of a writer to the Signet. He received the rudiments of education at a private academy in his native town, and was afterward removed to the high school, where he was more remarkable for his passion for tale-telling than for scholastic attainments. He had a desire for a military life, and was exceedingly mortified at finding that a lameness in his right leg was an insuperable bar to his wishes, and he soon launched into his career as an inimitable writer of historical romances. He bought, in 1811, a small farm on the Tweed, near Melrose, to which he gave the name of Abbotsford, and which, by successive purchases, gradually expanded into a large domain. In 1820, Scott was created a baronet, an acquisition of title destined to be succeeded by a loss of property which swept away all the profits of his literary labors. This was caused by the bankruptcy of his publishers, Messrs. Constable & Co., in January, 1826, an event which involved him in obligations to the amount of £100,000. To meet the demands upon him he redoubled his exertions, and having completed his "Life of Napoleon" in the following year, was enabled, out of the profits, to pay his creditors a dividend of about six shillings in the pound. Up to this time Sir Walter, though universally recognized as the author of the "Waverly Novels," had not publicly avowed the fact, but at the annual dinner of the Edinburgh Theatrical Fund in 1827, he threw off the mask. In November, 1830, Sir Walter retired from his office in the court of sessions, and symptoms of gradual paralysis soon after appearing, he was recommended, in the autumn of the following year, to pay a visit to Italy. Accordingly he sailed from Portsmouth on October 27, 1831, and landed at Naples. He visited Rome and other places, but finding his strength decreasing, he resolved to return home as rapidly as possible. He reached, on July 11, his residence at Abbotsford, where he was released by death, September 21, 1832. He left two sons and two daughters.

SIR WALTER SCOTT.

Shakespeare, William, the most illustrious poet and dramatist, was born at Stratford-upon-Avon, Warwickshire, April 23, 1564. He was baptized on April 26 of that year, and, as it was common at that period to baptize children on the third day after their birth, April 23 has, with much probability, been assumed as the day of his birth. Very little is known of Shakespeare's early life. He went to London, probably in 1585, and became connected with a company of players. Whatever may have been his position at first, his rise was rapid; though not as an actor, in which profession he never attained a very high rank. He probably began his career as dramatist by writing in company with Robert Greene and Christopher Marlowe, two authors of established reputation. He wrote altogether thirty-five complete five-act plays; a considerable portion of two others, and probably more or less assisted in other dramatic efforts. His early poems alone would suffice to place him in the first rank of English poets. His genius was phenomenal and almost universal in its scope, exhibiting a combination of imaginative power, intellectual and moral insight, sympathy with every emotion human nature can experience, and every form of beauty, gaiety and tenderness, with a power of inspiring terror, no phase of which

WM. SHAKESPEARE.

has ever been rivalled by any poet or dramatist. He is supposed to have abandoned the stage about 1604, and to have returned to Stratford to live about 1610 and 1613, passing the time, as Rowe says, "in ease, retirement and the conversation of his friends." The first collected edition of his works is dated 1623. He died April 23, 1616.

Stowe, Harriet Beecher, sister of Henry Ward Beecher and daughter of Lyman Beecher; a distinguished American novelist; was born at Litchfield, Connecticut, June 15, 1812, and was married in 1836 to Professor Calvin E. Stowe, of Andover Theological Seminary. Among her productions is "Uncle Tom's Cabin," which met with an immense success, and has been translated into more than twenty different languages. Died in 1896.

HARRIET B. STOWE.

Taylor, Zachary, twelfth President of the United States, was born in Virginia, Sept. 24, 1784, and died in Washington, D. C., July 9, 1850. He was an Indian fighter, and in the Black Hawk and Florida wars won great distinction. He was a very successful general in the Mexican war, and won the battle of Buena Vista. He had no political aspirations till nominated for the Presidency. He was nominated by the Whigs and elected President in 1848 over Lewis Cass, by an electoral vote of 163 to 127. He died when his term was half out.

Tyler, John, tenth President of the United States, was born in Virginia, March 29, 1790, and died in Richmond, Va., Jan. 18, 1862. He was prominent in public affairs, was elected Governor of Virginia in 1825 and United States Senator, 1826. Was elected Vice-President of the United States in 1840, receiving 234 electoral votes to 60 in opposition. On the death of President Harrison he became President April 4, 1841, and served the remainder of his term. He was a man of liberal education and at one time Chancellor of William and Mary College.

Van Buren, Martin, eighth President of the United States, was born in Kinderhook, N. Y., Dec. 5, 1792, and died there July 24, 1862. He was United States Senator from New York, elected Governor of New York in 1828 and Vice-President of the United States under Jackson in 1832. He was elected President in 1836, receiving 170 electoral votes to 124 for the opposing candidates. He was renominated for a second term, but largely owing to the financial panic prevailing at the time was overwhelmingly defeated, receiving 60 electoral votes to 234 for Harrison.

Victoria, Queen of Great Britain and Ireland and Empress of India, daughter of the Duke of Kent, fourth son of King George III., born May 24, 1819, succeeded her uncle, William IV., June 20, 1837, and on June 20, 1897, celebrated her Diamond Jubilee, the sixtieth anniversary of her ascending the throne. She was married February 10, 1840, to Prince Albert of Saxe-Coburg-Gotha, known later as the Prince Consort, who proved a most excellent husband and the father of nine children (four boys and five girls), seven of whom were alive at the time of the Diamond Jubilee. The Prince Consort died December 14, 1861, and his widow remained faithful to his remembrance. She has proved a wise, prudent and vigilant Queen, as well as a most admirable wife and mother. Although the English method of government places all the real power in the hands of a Cabinet responsible to Parliament, she interfered more than once in the interest of peace, and, especially in the "Trent" affair, during the war of the Rebellion, personally prevented an outbreak of hostilities between Great Britain and the United States. The gigantic progress accomplished, in all spheres of British thought and action, during Queen Victoria's reign, while not to be fully ascribed to her influence, received, however, from this worthy woman all the assistance she could bestow upon it.

QUEEN VICTORIA.

Washington, George, an American general and the first President of the United States, was born Feb. 22, 1732, in Virginia. In 1755 he served as colonel under the unfortunate General Braddock, who fell a victim to his own haughtiness and imprudence. On that occasion Washington gave strong proofs of his military courage and skill, particularly in conducting the retreat of the army. He held the command of the Virginia troops until 1758, when he gave in his resignation on account of ill health. He then served his country as a Senator, and was elected a member of the assembly for Frederick County, and afterward for that of Fairfax. When the breach between the Colonies and Great Britain was widened by mutual animosity beyond hope of reconciliation, the eyes of his countrymen were fixed upon Washington, and accordingly, in June, 1775, he took supreme command of the army of America, at Cambridge, Mass. The history of Washington from this period is the history of the American war. To his intrepidity, prudence and moderation, the Americans were, in a great measure, indebted for that independence which was secured to them by the treaty of peace concluded in 1783. In 1789, he was elected President of the United States, on which he quitted his estate and was received at Philadelphia with the applause which he had so well merited. His government was marked by that well-tempered prudence which distinguished all his conduct. He was President two terms, refused a third term, but in 1798 he accepted the command of the army, which he held till his death, Dec. 14, 1799. He was buried at Mount Vernon.

Watt, James, an eminent mechanician, engineer and inventor, born at Greenock, Scotland, Jan. 19, 1736. He received the first part of his education at a school in his native town, and completed it at home by his own diligence. The science of mechanics formed at that early age his favorite study, and he was at 18 years of age apprenticed to a mathematical instrument maker in London. The bad state of his health, however, compelled him to return to Scotland after a year's stay in the metropolis. This was all the instruction he ever received in the business for which he was intended, yet he must have attained considerable skill, as, in 1757, he, on the recommendation of some relations, commenced the practice of it at Glasgow, and was immediately appointed mathematical instrument maker to the college. It was not, however, till 1763-4 that he began to devote himself seriously to the investigation of the properties of steam, and to ascertain those results upon which his fame was to be founded. He died near Birmingham, Aug. 25, 1819.

Webster, Daniel, LL. D., an American orator and statesman, born at Salisbury, N. H., Jan. 18, 1782. He graduated at Dartmouth College, 1801. After practicing law at Boscawen and Portsmouth, he became a member of Congress, 1813. He removed to Boston, 1816; was re-elected to Congress, 1822, and in 1828 entered the Senate of the United States. His famous debate with Hayne was in 1830; that with Calhoun in 1833. He visited Europe in 1839, and was Secretary of State from 1841 to 1843. Mr. Webster negotiated the Ashburton Treaty; afterwards he served in the Senate, and his last office was that of Secretary of State under President Filmore. Among American public men of his day, none were superior to him in talents, learning and forcible eloquence. He died at Marshfield, Mass., Oct. 24, 1852.

Wellington, Arthur Wellesley, one of the greatest of British generals, victor over Napoleon I. at Waterloo, June 18, 1815; was born in Ireland, May 1, 1769, the third son of the Earl of Mornington. He obtained his ensign's commission in 1787. Saw active service in the Netherlands, 1794. In 1797 he landed in India as colonel, his brother being Governor-General. With 8,000 men he defeated, at Assage, Scindia's 30,000 men. In 1808, he was made commander of the army sent to the Peninsula. In 1810, he won the battle of Talavera, Spain; then successively conquered from the French, Badajoz and Ciudad Rodrigo, and won the great battle of Salamanca. In 1813, his victories of Vittoria and the Pyrenees drove the French into France, where he won the battle of Toulouse against the retreating Marshal Soult. His great victory of Waterloo was the climax of his career. Honors were poured upon the great general's head. From the younger son of an earl he had become a viscount, a marquis, a duke, a prince of the Roman Empire, a grandee of Spain of the first class, a K. G., etc. Poor as England was then, it found the means to make Wellington one of the wealthiest nobles of his day. The estate of Strathfieldsaye was presented to him. After 1822, the general became a statesman. In 1827 he succeeded the Duke of York as commander-in-chief; was Prime Minister from 1828 to 1830. At first he was opposed to all reforms, but he finally sustained the liberal measures of Sir Robert Peel. He died suddenly at Walmer Castle, 1852, and was buried in St. Paul's Cathedral.

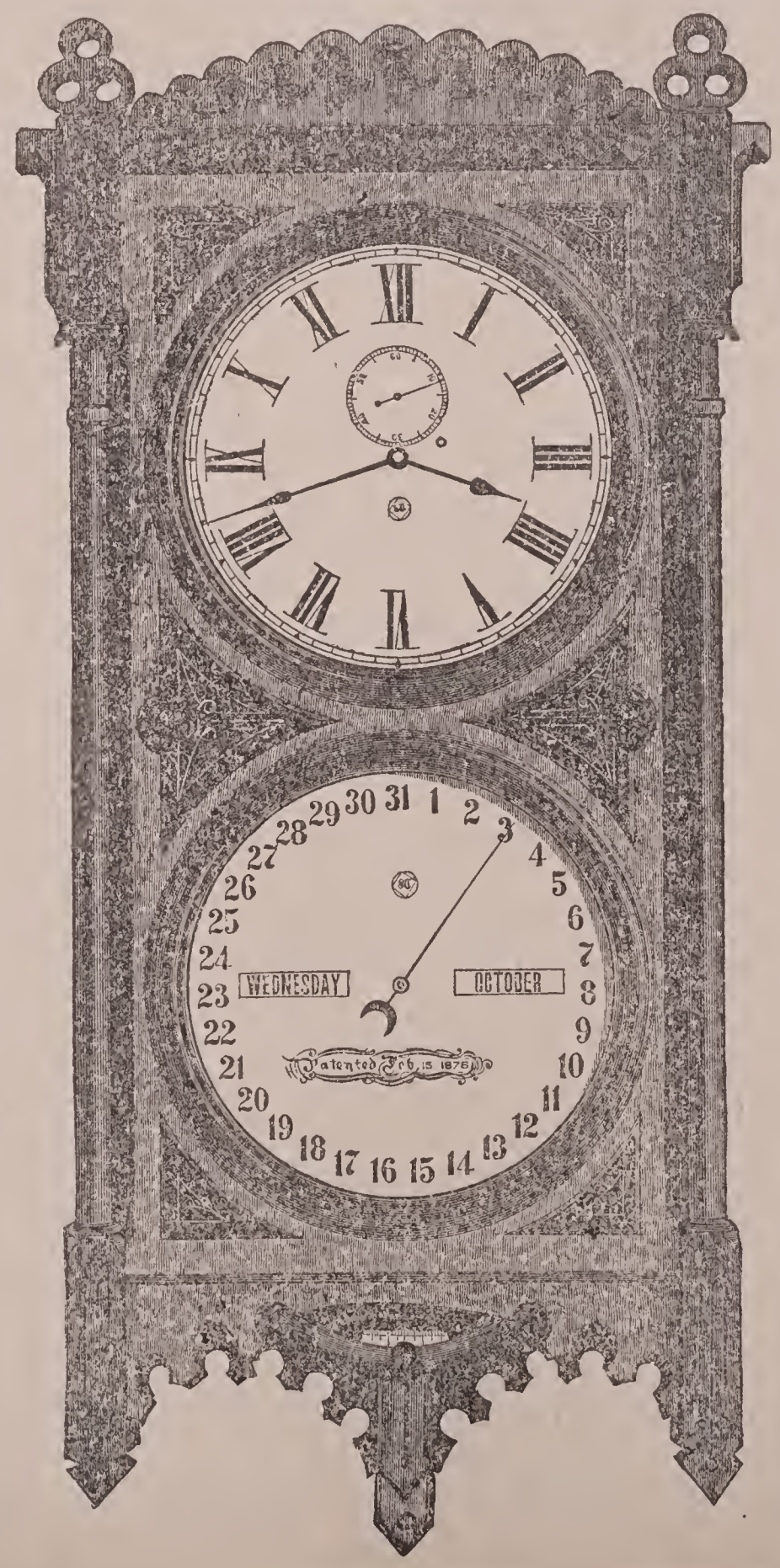
DUKE OF WELLINGTON.

Difference of Time

SHOWING THE TIME IN VARIOUS PARTS OF THE WORLD WHEN IT IS NOON AT

WASHINGTON, D. C.

Alaska	7.23	A.M.
Albany	12.13	P.M.
Amsterdam, Holland	5.28	"
Angra, India	3.19	"
Atchison, Kas	10.47	A.M.
Athens, Greece	6.43	P.M.
Atlanta, Ga	11.40	AM.
Augusta, Me	12.29	P.M.
Baltimore	12.02	"
Bath, Me	12.29	"
Berlin, Germany	6.02	"
Bombay, India	10.00	"
Boston	12.24	"
Brussels, Belgium	5.25	"
Buffalo, N. Y	11.52	A.M.
Cape Town, Africa	6.22	P.M.
Cairo, Egypt	7.13	"
Calcutta, India	11.01	"
Canton, China	12.41	A.M.
Cambridge, Mass	12.29	P.M.
Charleston, S. C	11.43	A.M.
Chicago	11.17	"
Cincinnati	11.30	"
Cleveland, O	11.41	"
Columbia, S. C	11.44	"
Constantinople	7.04	P.M.
Danville, Va	11.50	A.M.
Denver, Colo	10.08	"
Des Moines, Iowa	10.53	"
Detroit, Mich	11.36	"
Dubuque, Iowa	11.05	"
Dublin, Ireland	4.43	P.M.
Edinburgh, Scotland	4.55	"
Galveston, Texas	10.49	A.M.
Halifax, N. S	12.54	P.M.
Hamilton, Ont	11.49	A.M.
Hannibal, Mo	11.07	"
Hartford, Conn	12.17	P.M.
Havana, Cuba	11.38	A.M.
Houston, Tex	10.44	"
Indianapolis	11.24	"
Jacksonville, Ill	11.07	"
Jefferson City, Mo	10.59	"
Kalama, Wash. Ter	8.58	"
Kansas City, Mo	10.49	"
Key West, Fla	11.41	"
Knoxville, Tenn	11.22	"
Laramie, Wy. Ter	10.12	"
Leavenworth, Kas	10.49	"
Lisbon, Portugal	4.31	P.M.
Lincoln, Neb	10.41	A.M.
Little Rock, Ark	10.59	"
London, Eng	5.08	P.M.



Louisville	11.26	A.M.
Macon, Ga	11.37	"
Melbourne, Aus	2.48	"
Memphis, Tenn	11.08	"
Meridian, Miss	11.14	"
Mexico	10.32	"
Milwaukee	11.16	"
Minneapolis, Minn	10.55	"
Mobile, Ala	11.16	"
Moncton, N. B	12.48	P.M.
Montreal, Can	12.14	"
Moscow, Russia	7.38	"
Nashville, Tenn	11.21	A.M.
New Orleans	11.08	"
New York	12.12	P.M.
Omaha, Neb	10.44	A.M.
Ottawa, Can	12.05	P.M.
Panama, S. A	11.50	A.M.
Paris, France	5.17	P.M.
Pensacola, Fla	11.19	A.M.
Philadelphia	12.07	P.M.
Pittsburgh, Pa	11.48	A.M.
Port Huron, Mich	11.34	"
Portland, Me	12.27	P.M.
Portland, Oregon	8.56	A.M.
Portsmouth, Va	12.03	P.M.
Providence, R. I	12.22	"
Quebec, Can	12.23	"
Quincy, Ill	11.07	A.M.
Raleigh, N. C	11.50	"
Richmond, Va	11.58	"
Rio Janerio, Brazil	2.15	P.M.
Rome, Italy	5.58	"
Rome, Ga	11.32	A.M.
San Francisco	8.58	"
Salt Lake City	9.40	"
Savannah, Ga	11.44	"
Selma, Ala	11.20	"
Sioux City, Iowa	10.42	"
St. John, N. B	12.44	P.M.
St. Johns, N. F	1.37	"
St. Joseph, Mo	10.50	A.M.
St. Louis	11.07	"
St. Paul, Minn	10.56	"
Terre Haute, Ind	11.18	"
Toronto, Can	11.51	"
Vera Cruz	10.43	"
Vicksburg, Miss	11.05	"
Virginia City, M. T	9.40	"
Wheeling, W. Va	11.45	"
Wilmington, N. C	11.58	"
Yankton, Dak. Ter	10.38	A.M.

Law and Legal Forms.

For the Business Man.

GOVERNMENT, a subject deeply interwoven with the happiness and comforts of the human race, has been that arrangement over which *wisdom* has always had the least control. Most governments are founded on usurped power, and are results of pride and self-interest. For the most part, they have arisen from military conquest, or some accidental ascendency, during an insurrectionary movement; and the rule of government has, in consequence, been the will of a leader on one side, and abject submission of the rest of the community on the other. No check on power has existed but in the forbearance or idleness of the ruler, or in the scruples of his agents; and, if checks have been introduced, they have been either mere concessions of policy, or have been rendered inefficient by colorable forms, or by various sinister and counteracting influences.

UNITED STATES SUPREME COURT IN SESSION.

Law, in its general sense, signifies a rule of social conduct, which superior authority has dictated, and which the separate members of the community are bound to obey. The law of nature is a principle of self-love, or the individual pursuit of happiness. The law, in practice, however, is the primary and chief cause of half the miseries of human life, owing to the chicanery of it professors.

STATUTE AND COMMON LAW.

Business is regulated by forms of law, whether statute or common.

Statute is an act of the legislature, whether state or national. It is the written law of the land. Statutes are either public or private—the former a universal rule that regards the whole community, the latter only affecting particular persons or private concerns.

Statutes are also sometimes described as declaratory, or penal, or remedial, according to the different nature of their object or provisions. Statutes are to be construed, not according to their mere letter, but the intent and object with which they were made. It is also an established rule that remedial statutes are to be more liberally, and penal more strictly construed.

The common law is grounded on the general customs of England, and includes in it the law of nature, the law of God, the principles and maxims of the law, and the decisions of the superior courts, which are founded

thereon; and is said to be the perfection of reason, acquired by long study, observation, and experience, and refined by learned men in all ages. It overrides the cannon and civil law, where they go beyond, or are inconsistent with it.

In the illustration on the preceding page, it will be seen that there are nine justices, or one chief justice and eight associate justices. At its first session in 1790, the Supreme Court of the United States consisted of a chief justice and five associates. In 1807 the number of associate justices was increased to six; in 1837 it was increased to eight; and in 1863, to nine; in 1865 was decreased to eight, then to seven in 1867, and again increased to eight in 1870.

INFANTS IN LAW.

BEGINNING with infancy or youth, all persons are infants in law until they are of legal age —twenty-one years; or eighteen years, as regards women in some States.

People generally may bind themselves by contracts, but some are incapacitated from being under guardianship, or from other causes, such as insanity, alienage in time of war, infancy and marriage.

A person under age—an infant—can neither sell his lands, nor do any legal act, nor make a deed, nor, indeed, any manner of contract that will bind him; but to these rules there are some exceptions. Infants have thus various privileges and various disabilities; but their very disabilities are privileges, in order to secure them from hurting themselves by their own improvident acts.

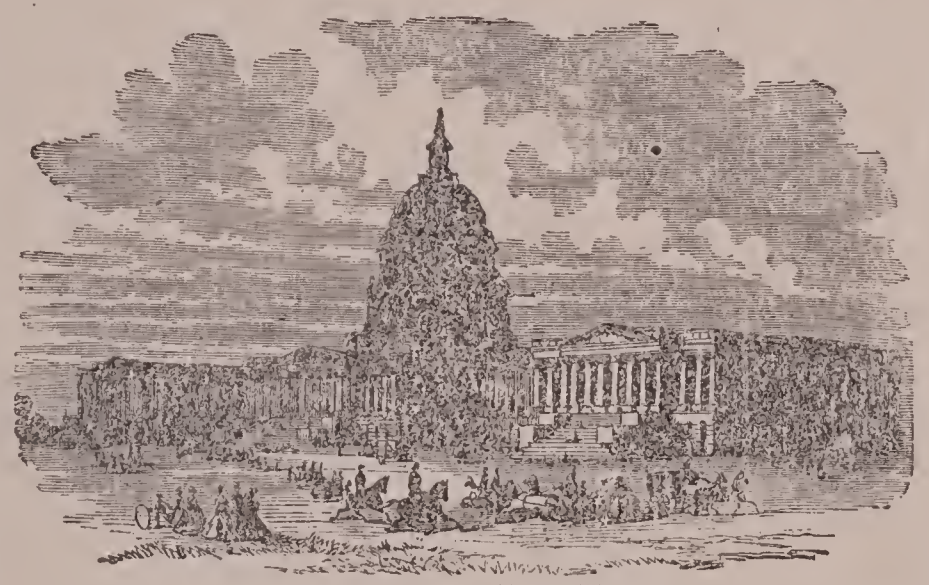
The learned Judge Story has said that the "Human life is divided into four periods, each of which is a multiple of seven." "Natural infancy ends at seven years; puberty begins at fourteen; legal infancy ends at twenty-one years; and the natural life of a man is three score years and ten." The law does not take any cognizance of the acts of natural infants, either criminal or civil. An infant may be punished for crime after its seventh year. The contracts made after that age are said to be voidable until the end of legal infancy. The contracts of infants are said to be divided into three classes, those that are void, those that are voidable, and those that are binding. It is clear and well settled in law that all contracts made by an infant which would be prejudicial to his interests would be absolutely void; it is also clear that such contracts as might be to his benefit would be voidable on his part. But as to the contracts made by infants, which are for necessities, and are called binding contracts, it is so clearly defined. The principle on which the law seeks to throw the strong arm of protection around the infant is, that from his tender years and inexperience he is incapable of guarding against the subtlety and artifice of those who have had more experience in business, and whose minds are matured. It is true that an infant has as much right to live as an adult. It is also true, that if the infant is not provided with a protector through whom he may be furnished with the necessities of life and is not allowed to procure them, it would be impossible for him to live, and as business men would not long continue to furnish these things without some legal means of getting a compensation, the law would justly compel the infant, after he had arrived at the age of maturity, to give an equivalent for the necessaries furnished him during infancy. But the law would not in any way recognize the contract made by the infant, but would carefully investigate all of the circumstances, and would then make a contract for the infant, or imply that the estate of the infant should be held for such price as the necessaries were absolutely worth at the time they were furnished to him, and not necessarily at the price charged. If an infant should purchase clothing, at a price fixed, or should contract to pay a certain price per week or month for board, though the agreement be reduced to writing, as a promissory note, the law would not enforce the contract, but would allow the person who had furnished the clothing, or who had boarded the infant, a reasonable price, not on account of an existing contract, but because the infant must live. An adult would be bound by a contract made with an infant as though he had made it with a person competent to make binding contracts. When we say that a contract with an infant is absolutely void, we have reference to the infant, and not to the party who was competent. The law relating to infants, is wholly for their benefit and protection. If A, an adult, should sell to B, an infant, a a horse, which was to be paid for at a day in the future, and B, the infant, should use the horse in such a way as to injure him and render him valueless, A could not

recover from B anything for the horse. But if A, the adult, should sell to B, the infant, a horse for cash, and B should afterward wish to return the horse, he would have a right to do so, and A would be compelled to return the purchase price to B, notwithstanding the horse was useless.

An infant is responsible for frauds or misrepresentations. If he should induce others to let him have goods through false statements he would be held responsible the same as an adult under like circumstances. The protection of the infant is the object sought by the law, and not to shield him against his wrong doings.

TRUSTS.

Trusts are generally either to protect the interests of married women and children, by placing in the hands of trustees for them the legal rights which they would be incapable of exercising, or to secure the rights of those in remainder, by severing from the use of property for a life the power of disposing of the whole. The estate of the trustee is at law subject to all the incidents which attend the ownership of land, and is usually called the trust estate, in contradistinction to the legal estate.



THE CAPITOL, AT WASHINGTON

Frequently trusts involve the sale or purchase of lands or other property, the investment of funds, etc., in which cases the trustee has to exercise due caution, or he may be rendered liable for any loss that may arise.

DEED OF TRUST FOR THE BENEFIT OF A MARRIED WOMAN.

This Indenture, made this second day of December, in the year of our Lord one thousand eight hundred and eighty-four, between William Thorniley, of Marietta, County of Washington, and State of Ohio, of the one part; and James C. West, of said Marietta, of the other part: ***Witnesseth,*** that the said William Thorniley, for and in consideration of the sum of one hundred dollars, to him in hand paid by the said James C. West, for the uses and upon the trusts hereinafter mentioned, at and before the ensealing and delivery hereof, the receipt whereof he does hereby acknowledge, has granted, bargained, sold, aliened, enfeoffed, released and confirmed, and by these presents doth grant, bargain, sell, alien, enfeoff, release and confirm unto the said James C. West, his heirs and assigns forever, all that certain piece or parcel of land, situate, etc. (*describe premises*), together with all and singular the buildings and improvements to the same belonging, or in anywise appertaining, and the revisions and remainders, rents, issues, and profits thereof. ***To have and to hold*** the said piece or parcel of land, with appurtenances, hereby granted or intended so to be, unto the said James C. West, his heirs and assigns forever: ***In trust nevertheless,*** and for the uses following, and none other, that is to say, for the sole and separate use of Adeline West, the wife of James C. West, of Marietta, County and State aforesaid, for and during her natural life, and so as she alone, or such person as she shall appoint, shall take and receive the rents, issues and profits thereof, and so as her said husband shall not in anywise intermeddle therewith; and, from and after the decease of the said Adeline West, in trust for the use of the heirs of the body of the said Adeline West, by the said James C. West begotten, or to be begotten, forever, with power to the said James C. West, to sell and convey, in fee simple, the whole or any part, of the aforesaid premises and appurtenances to any person or persons, and for such sum or sums of money, as the said Adeline West, by writing under her hand and seal, and duly acknowledged at any time during her natural life, may appoint and direct; and the said William Thorniley, for himself, his heirs, executors, and administrators, doth covenant and agree, to and with, the said James C. West, his heirs and assigns, by these presents, that he, the said William Thorniley, and his heirs, the said above-mentioned and described piece or parcel of land, with the appurtenances, unto the said James C. West, his heirs and assigns, against him, the said William Thorniley, and his heirs, and against all and every other person and persons whomsoever, lawfully claiming or to claim the same, or any part thereof, shall and will warrant and forever defend by these presents.

Signed and sealed this second day of December, A. D. 18 .

WILLIAM THORNILEY. [Seal.]

Witness:
JOHN DOE.
CHAS. ROE.

Agreement and Assent.

Agreement is where a promise is made on one side, and assented to on the other; or where two or more persons enter into engagement with each other, by a promise on either side. If such contract is by deed, it is called either a contract by deed or a contract by specialty; if not by deed, a parol or simple contract. The latter may be either written or verbal. An agreement is void if there be no consideration for it, or it be against public policy or morality, and is voidable if obtained by fraud, force, or misrepresentation.

Every contract or agreement should be written, and signed by the parties concerned. It is best to have such papers witnessed, and everything agreed upon

should be written out plainly. It is important to say just what is meant and all that is meant, and no more, since no oral testimony has weight in connection with a written agreement, unless fraud can be proved.

CONSIDERATION.

CONSIDERATION is the material cause of a contract, without which it cannot bind the party. The consideration is either expressed or implied. The latter is when the law itself enforces a consideration; as, if a man goes into a hotel or inn, and staying there some time, takes meat or lodging either for himself or his horse, the law presumes he intends to pay for both, notwithstanding there is no actual bargain or contract between him and his host. Also, there is a consideration of nature and blood, and a valuable consideration; and hence, if a man be indebted to divers others, and, in consideration of natural affection, gives his goods or estate to his son, this is a fraudulent gift as against the creditors (unless it be upon, or in consideration of, his marriage), because this act intends a valuable consideration.

BONDS.

A WRITTEN promise that is made, with a seal, by one person in favor of another—a kind of contract—is in veryextensive use, being adopted in a great variety of cases, where the object is to obtain security for the payment of money, or the performance of any other act. There is generally a condition added to a bond, that if the obligor does some particular act, the obligation shall be void, or else shall remain in full force.

FORM OF BOND.

Know all Men by these Presents, That I, John Doe, of the County of Cook, and State of Illinois, am held and firmly bound unto Albert Roe, of Philadelphia, Penn., in the sum of one thousand dollars, good and lawful money of the United States of Ameriea, to be paid to the said Albert Roe, or to his eertain attorney, executors, administrators, or assigns; for whieh payment, well and truly to be made, I do bind myself, and my heirs, exeeutors, and administrators, jointly and severally, firmly by these presents.

Sealed with my seal, and dated this first day of January, in the year of our Lord one thousand eight hundred and eighty-eight.

The Condition of this Obligation is such, that if the above bounden John Doe, his heirs, exeeutors, and administrators, or any of them, shall well and truly pay, or eause to be paid, unto the above named Albert Roe, his exeeutors, administrators, or assigns, the just and full sum of one thousand dollars, on the first day of January, which will be in the year one thousand eight hundred and ninety-two, and interest thereon at the rate of six per cent per annum, payable semi-annually on the first days of January and July in eaeh year; *And it is hereby expressly agreed,* that should any default be made in the payment of the said interest or any part thereof, on any day whereon the same is made payable as above expressed, and should the same remain unpaid and in arrear for the spaee of thirty days, then and from thenceforth, that is to say, after the lapse of the said thirty days, the aforesaid prineipal sum of one thousand dollars, with all arrearage of interest thereon, shall, at the option of the said Albert Roe, beeome and be due and payable immediately thereafter, although the period above limited for the payment thereof may not then have expired, anything herein before contained to the eontrary thereof in anywise notwithstanding, then this obligation to be void; otherwise to remain in full force and virtue.

JOHN DOE. [SEAL.]

Sealed and delivered in the presence of
JOHN CUNNINGHAM,
JAMES DANIEL.

ASSIGNMENT.

ASSIGNMENT is the transferring in writing and setting over to another of some right, title, or interest. The one making the assignment is called the assignor, and the one to whom the assignment is made is called the assignee. Every species of property, real or personal, is assignable. An assignee is not required to show that he gave any valuable consideration for the assignment.

An assignment by a debtor for the benefit of his creditors must be an unconditional surrender of all his effects. If he should hold back any property, such withholding would be fraudulent. An insolvent debtor has the right to prefer one creditor to the exclusion of all others, if such preference be in good faith. Whenever an assignment is made for the benefit of creditors, it must be accompanied by immediate possession of the property assigned.

ASSIGNMENT OF DEMAND FOR WAGES OR DEBT.

In Consideration of fifty dollars to me in hand paid by Albert Roe, of the eity of Cleveland, the reeeipt whereof is hereby aeknowledged, I, John Doe, of the same plaee, have sold, and by these presents do sell, assign, transfer and set over, unto the said Albert Roe, a eertain debt due from James Kline, amounting to the sum of seventy-five dollars, for work, labor and serviees by me performed for the said James Kline (*or for goods* sold and delivered to the said James Kline), with full power to sue for, eollect, and discharge, or sell and assign the same in my name or otherwise, but at his own eost and charges; and I do hereby eovenant that the said sum of seventy-five dollars is justly due as aforesaid, and that I have not done, and will not do, any aet to hinder or prevent the eolleetion of the same by the said Albert Roe.

Witness my hand, this Jan. 10, 18 .

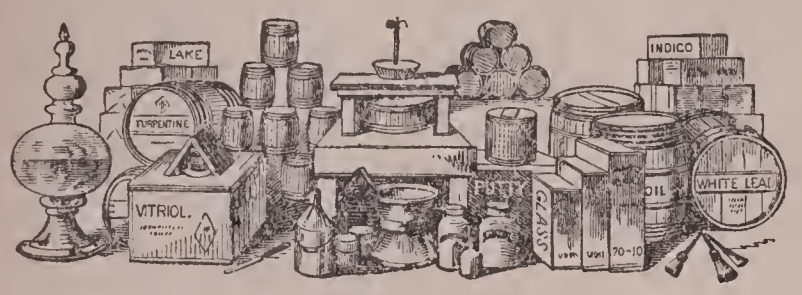
JOHN DOE.

ASSIGNMENT BOND.

For value received, I hereby assign, transfer, and set over to John Doe, the within obligation, hereby guarantying payment thereof.

Witness: CHAS. ROE.
JOHN BROWN.

BILL OF SALE.



A BILL of sale is an instrument under seal, which passes the right and property in chattels from one to another; and, being under seal, and therefore a solemn contract, the seller cannot, as he might in the case of a mere verbal contract, show that it was made without good or valuable consideration, and that, therefore, in law, the property did not pass, and no action can be maintained to recover it. If the original owner retains possession of the property contrary to the purport of his assignment, such act entitles the creditors of the original owner to impeach the transaction. The sale is made when the agreement is made.

FORM OF BILL OF SALE.

Know all Men by these Presents, That we, John Doe and Charles Roe, of the city of Chicago, in the County of Cook and State of Illinois, parties of the first part, for and in consideration of the sum of two thousand dollars, lawful money of the United States of Ameriea, to us in hand paid, at or before the ensealing and delivery of these presents, by John W. Brown, of the same plaee, of the second part, the reeeipt whereof is hereby aeknowledged, have granted, bargained, sold, and delivered, and, by these presents, do grant, bargain, sell, and deliver, unto the said parties of the seeond part, all the following goods, chattels, and property, ***to wit:*** (*Here enumerate all the goods to be transferred.)*

To Have and to Hold the said goods, ehattels, and property unto the said party of the seeond part, his heirs, exeeutors, administrators, and assigns, to and for his own proper use and behoof, forever.

And the said parties of the first part do vouch for ourselves to be true and lawful owners of the said goods, chattels, and property, and have in our full power, good right, and lawful authority, to dispose of the said goods, chattels, and property, in manner as aforesaid: And we do, for ourselves, heirs, exeeutors, and administrators, eovenant and agree to and with the said party of the seeond part, to ***warrant and defend*** the said goods, chattels, and property to the said party of the second part, his exeeutors, administrators, and assigns, against the lawful elaims and demands of all and every person and persons whomsoever.

In witness whereof, we have hereunto set our hands and seals, the first day of January, in the year one thousand eight hundred and eighty-four.

Sealed and delivered in presence of JOHN DOE, [*Seal.*]
JOHN RUSSELL. CHARLES ROE, [*Seal.*]

Stoppage in Transitu

IS A RIGHT which a vendor has of resuming possession of goods sold on credit to another, while the goods are in the hands of a middleman or carrier.

This right may be exercised where the vendee or consignee has become insolvent after the goods have been forwarded, and before they have reached the vendee or consignee.

The vendor would also have the right, if he should learn of the financial embarrassment of the vendee, or that he has in a material manner misrepresented his circumstances or his ability to pay. There must, in order to give the right, be an indebtedness on the identical goods about to be stopped; other indebtedness will not give the right.

The right may be exercised at any time after the goods have left the hands of the vendor, and before they come into the possession of the vendee.

If a vendee should transfer the goods to another person by indorsing the bill of lading, while the goods are yet in transit, the vendor's right would be gone.

The vendor's right of stoppage is paramount to the middle-man's right of lien, for such charges as he may have on the goods. When exercised in time the vendor's right has a precedence over all other claims.

The right may be exercised by merely giving notice to the immediate middle-man or carrier, after which notice, the vendor's claim is fully established, notwithstanding the fact that the goods are afterwards delivered to the consignee or vendee.

After the goods have been stopped by the vendor, the vendee would have the right to tender to the vendor the amount remaining unpaid on the goods and demand them, as the ownership still resides in the vendee; but if the vendee should not avail himself of the right to pay for and take the goods, the vendor may then sell the goods to satisfy his claim, and if they should not sell for enough to pay his claim, he would still have recourse to the vendee for the balance; but, if on the contrary, the goods should bring more than his claim, such overplus must be paid to the vendee.

The right of stoppage does not in any way annul the contract, and therefore the vendee or his assigns may recover the goods on the payment of the amount due the vendor on the goods. When the goods have reached the possession of the vendee, the right of stoppage by the vendor has ceased.

GUARANTY.

A GUARANTY is defined to be an undertaking to answer for the payment of some debt, or the performance of some duty in case of default of another person. From this definition it will be seen that there are three parties to the contract, Principal Debtor, Creditor, and Guarantor.

The principal debtor is the party for whom the guaranty is made, the creditor is the one to whom the guaranty is made, the guarantor the one who makes the conditional obligation to become responsible in case of the failure of the principal debtor.

The guarantor is only bound by his contract after an acceptance and a notice of such acceptance by the creditor. The contract of guaranty, like other contracts, must be supported by a proper consideration, but it is not necessary that the consideration should move directly to the guarantor. It would be held sufficient if the one for whom the guaranty is made receives a benefit, or, the one to whom the guaranty is given suffers an injury or inconvenience.

A contract of guaranty must be in writing, and signed by the guarantor. If one person should say to another, "If you will let this person have goods to the amount of twenty dollars, I will see that he pays for them," the contract would be one of guaranty, and would not be binding unless reduced to writing.

Where a guarantor pays the debt of his principal, he has the right to demand from the creditor such securities as he may have in his possession belonging to the debtor, and frequently the creditor cannot compel the guarantor to pay the debt which he has guarantied until after recourse has been had to such property as the creditor may have had in his possession as security, belonging to the debtor.

FORMS OF GUARANTY.

GUARANTY TO BE WRITTEN ON A NOTE.

For value received, I guaranty payment on the within note.
January 8, 18 . JOHN DOE.

LETTER OF GUARANTY.

NEW ORLEANS, La., Jan. 4, 18 .

JOHN DOE, Esq., Memphis, Tenn.:

Sir:—If you will sell to Mr. D. M. Ray, of this city, the articles he may wish to purchase, to the amount of one thousand dollars, I, for value received, hereby promise and guaranty that the price thereof shall be duly paid.

Respectfully,
RICHARD ROE.

FRAUD.

INCLUDES all deceitful practices in defrauding, or endeavoring to defraud, another of his known right, by means of some artful device, contrary to the plain rule of common honesty. It is condemned by the common law, and punishable according to the heinousness of the offense. All frauds and deceits for which there is no remedy by the ordinary course of law are properly cognizable in equity, and, indeed, constituted one of the chief branches of cases to which the jurisdiction of chancery was originally confined. Whenever fraud or surprise can be imputed to or collected from the circumstances, equity will interpose and grant relief against it. It would be impossible to lay down any general rules that would be applicable to all kinds of fraud, as they are innumerable and ever varying, the ingenuity of man ever finding out new modes of deceit and new means of avoiding detection. A fraudulent conveyance of lands or goods to deceive creditors, is, as to creditors, void in law, and a fraudulent contract to deceive purchasers is also to such purchasers void. Where a person is party to a fraud, all that follows by reason of that fraud shall be said to be done by him. If a person be fraudulently prevented from doing an act, equity will consider the act as done. In treaties, concealment of a material fact by one of the parties, in order to keep the other in ignorance, whereby to profit, is a gross fraud, and the contract will be set aside in equity. There can be no fraud concerning things either within one's own knowledge, or to which one has adequate means of knowledge.

Payment and Tender.

PAYMENT is the discharge of a debt by a delivery of the amount due; and this is, of course, the most direct and proper discharge of it, and the most complete defense against any claim founded upon it. The party entitled to receive the money may give notice that the payment must be made directly to himself, and then no other payment discharges the debt; but without such notice the payment may be made in the ordinary course of business to his general agent or attorney.

Tender, in a general sense, is an offer to perform some act. In law, it is an offer to pay a debt, or to make pecuniary compensation to a party injured. A tender, in order to be valid, must be made in money, which must be shown to the eye. The offer must be absolute, without any conditions; for even the offer with the request of a receipt, or of a larger amount with the request of change, is not legal; but the offer of a larger sum absolutely, without a request of change, is good.

RELEASE.

A RELEASE is a discharge of a right, which may be either in lands or tenements, or of actions, or things personal. The former is a conveyance of a man's right in lands or tenements to another that has some vested estate in the lands. The person who quits or renounces the right is the releasor; he in whose favor the right is renounced is the releasee; while the operative words of the deed are "remit, release, renounce, and forever quit claim." A release always gives up some right, claim or interest which the releasor had against the releasee. It partakes of the nature of a contract, which cannot be governed or changed by evidence excepting in case of fraud.

It being in the nature of a contract, must necessarily be supported by a valid consideration and would be inoperative without it. A release must be in writing and under seal, which implies a consideration, but it is always well to mention the consideration, as evidence might be admitted to show that the release had been obtained without consideration. When a release has been properly drawn, signed, and delivered it will operate as a complete defense to an action grounded on any of the claims or debts released.

GENERAL RELEASE OF ALL DEMANDS.

Know all Men by these Presents, That I, George Soule, of the City of New Orleans, State of Louisiana, as well for and in consideration of the sum of one hundred dollars to me in hand paid, by T. A. Leddin, of the same place, at and before the ensealing and delivery hereof, the receipt whereof I do hereby acknowledge, as for divers other good causes and valuable considerations to me thereto specially moving, have remised, released, quit claimed, and forever discharged, and by these presents, for me, my heirs, executors, administrators, do remise, release, quit claim, and forever discharge, the said T. A. Leddin, his heirs, executors, and administrators, and each and every of them, of and from all and all manner of action and actions, suits, cause and causes of action and actions, suits, debts, dues, duties, sum and sums of money, accounts, reckonings, bonds, bills, specialties, covenants, contracts, arguments, premises, variances, damages, judgments, extents, executions, claims, and demands whatsoever, in law, equity, or otherwise whatsoever which against the said T. A. Leddin I ever had, now have, or which I, my heirs, executors, and administrators hereafter, can, shall, or may have, for, upon, or by reason of any matter, cause or thing, whatsoever, from the beginning of the world to the day of the date of these presents.

In Witness Whereof, I have hereunto set my hand and seal, this second day of December, in the year one thousand eight hundred and eighty-four.

Signed, sealed, and delivered in presence of
WM. BLOCK,
AMOS GREEN.

GEORGE SOULE. [*Seal.*]

SHORT FORM OF GENERAL RELEASE.

Know all Men by these Presents, That I, John Doe, of Chicago, County of Cook, and State of Illinois, for and in consideration of the sum of two hundred dollars, to me in hand paid, by Chas. Roe, of the same place, have remised, released, and forever discharged the said Chas. Roe from all claims of whatsoever kind, nature, or character, against him, from the beginning of the world to this day. ***As Witness*** my hand and seal this second day of December, in the year one thousand eight hundred and eighty-four.

Signed, sealed, and delivered in presence of
WM. BLOCK,
AMOS GREEN.

JOHN DOE. [*Seal.*]

AGENCY.

AGENCY is the relation existing between two or more persons, by which one party known as the principal employs another party known as an agent to do certain acts in relation to the principal's property. The authority exercised by the agent is usually in the name and for the benefit of the principal. The agent's power may be constituted either by express appointment, verbal or in writing, or by implication of law, arising from the circumstances in which the parties are placed. When the authority is given by a written instrument, this instrument is called a Power of Attorney.

An agent is not required to be a person able to make a contract on his own account. Minors, married women and aliens are competent to act as agents, as they are not called upon to act upon their own responsibility, but where an infant acts as agent, he would only be personally liable for torts committed by him, but the principal would be held for his acts as though he were an adult.

The relation of agency supposes that there are three parties, who may be directly or indirectly interested in business relations that flow through the agency; the first of these parties would be the principal, or the one authorizing acts to be done; the second would be the one authorized to do the acts, or the agent, and the third party is the one who through the acts of the agent is brought into relation with the principal.

From the above it would necessarily follow that the relation of principal and agent, as between themselves, can only be brought about through the principal's delegating authority to the agent, which is assented to by the agent; this authority from the principal to the agent may be expressed either in words spoken or by written instructions from the principal and assented to by the agent, or the agent's authority may be implied through the contract of the principal and the agent. If an agent is authorized to make contracts for his principal, which the law requires to be in writing and under seal, the agent's authority must also be given under a sealed instrument.

An agency is termed to be either general or special. A general agency is defined to be a power exercised by a general agent, and a general agent is one who is clothed with discretionary authority in relation to the principal's business about which the agent is appointed. A general agent may bind his principal so long as he keeps within the general scope of the business he was authorized to transact, notwithstanding that he may have grossly disobeyed instructions given by his principal, providing the party with whom he was dealing did not know that the agent was exceeding or violating his authority. A special agency is defined to be a power exercised by a special agent, and a special agent is one who is not permitted to exercise discretionary authority, but must follow the specific instructions given by the principal. A principal would be bound, only so long as the special agent keeps within the special limits of his authority. Persons having dealings with a special agent are required, at their own peril, to know the extent of such agent's authority.

All agents are required to obey instructions as long as the instructions are legal, but if illegal, they may be disobeyed with impunity. Instructions may also be disregarded in case of extreme necessity or unforeseen emergencies. In the absence of instructions the agent would be required to follow the customary course of business. He is to exercise such skill as persons of common capacity would when similarly employed, and the same degree of diligence that persons of ordinary prudence are accustomed to use about their own affairs. The agent is required to keep his principal fully informed in relation to all the important affairs connected with the agency, and is also required to keep correct accounts and be able at all times to render just and true statements without concealment or overcharge. It is his duty, if removed from the principal, to deposit in a bank, in the principal's name, any money belonging to the principal.

If an agent should exceed his authority, the party with whom he was dealing could make the agent responsible on the entire contract, notwithstanding that a portion of it was within the limits of his authority. Where one without authority acts as agent, he would be personally responsible. If a principal has intrusted goods to an agent who should sell them without authority, the principal would have the right to either ratify the sale and sue the purchaser for the price, or disaffirm the contract and repossess the goods from the buyer.

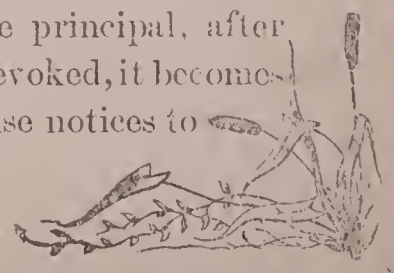
Payment made to an agent of money due to the principal would bind the principal, if made in the regular course of business, but where payment is made to a sub-agent who received his appointment from the agent, and unauthorized by the principal, it would bind the agent and make him responsible to the principal.

Where a principal receives the benefit of an act done by his agent, which act was out of the scope of the agent's instructions or authority, the agent would be relieved from any responsibility, or an unnecessary delay on the part of the principal in renouncing the act as his would relieve the agent and make the principal responsible.

If an agent is employed to sell goods, he cannot become the purchaser of such goods, nor could he, if employed to purchase goods, become the seller.

When an agent's authority has been revoked, the revocation takes effect (as far as the agent is concerned) from the time it is made known to him, and as to third persons, from the time they have received notice.

In order to avoid having to pay for contracts made by an agent, in the name of the principal, after the agent's authority has been revoked, it becomes the duty of the principal to cause notices to be sent to all who have had dealings with the agent.

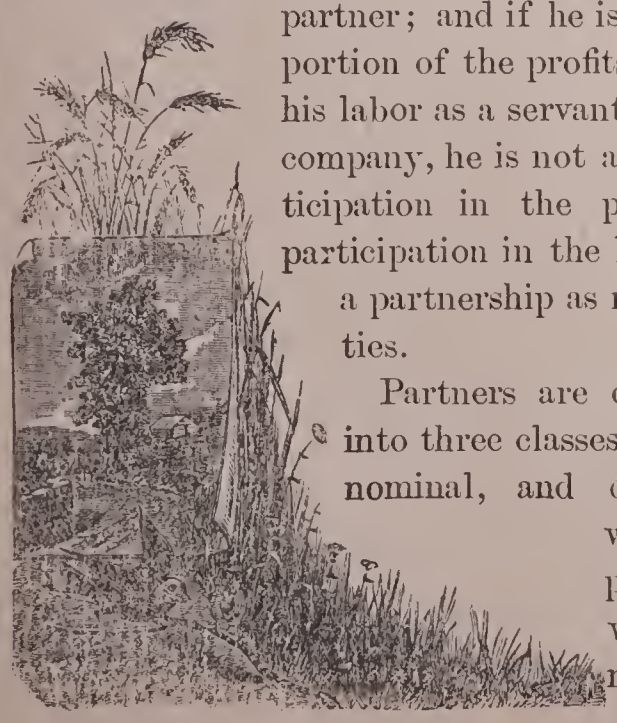


PARTNERSHIP.

WHEN two or more persons agree to unite their capital, labor, and skill, all or any of them, for carrying on some business, it is called a Partnership. As commonly used, partnership is only applied to the smaller associations of individuals, comprising usually a few members; where an association, having gain for its object, consists of more than twenty members, it generally takes the shape of a chartered or joint-stock company; otherwise, in general, each partner would be liable, singly, for the debts of the whole partnership.

A partnership is commonly constituted by a written instrument, usually by deed, the provisions of which are denominated Articles of Partnership. It may be for a certain fixed time, or for an indefinite period, and may be dissolved either by the natural expiration of that period or the mutual agreement of the parties, or, in the event of disagreement, by decree of a court of equity. The mere consent of the parties is sufficient to constitute a partnership, and they may distribute their profits and regulate their affairs in any way they please among themselves; but they cannot, by so doing, limit, defeat, or elude, their responsibility to others.

In ordinary partnership, each member, however small his share, is liable for all the debts of the company. To constitute a person a partner, he must be a participator in uncertain or casual profits depending upon the accidents of trade. Where the premium or profit he is to receive is certain and defined, he is not a partner; and if he is only to receive a portion of the profits as payment for his labor as a servant or agent of the company, he is not a partner. A participation in the profits without a participation in the losses, constitutes a partnership as regards third parties.



Partners are ordinarily divided into three classes, *i. e.*, ostensible, nominal, and dormant. Those whose names appear before the world as partners, are known as ostensible partners. If they have no actual interest in the concern, but allow their names to be used, then they are known as nominal partners. Those whose names and connection with a firm are purposely concealed from the world, are known as dormant or silent partners. A dormant partner is, in all cases, liable for the contracts of the firm when it becomes known that he is a partner, so long as he remains a partner; and a nominal partner is, in the same manner, liable during the time he holds himself out to the world as a partner. The rights, duties, and obligations of the partners, are usually laid down in articles of partnership, and each partner has a right to hold his copartners to the specified purposes of their union while the partnership continues. The powers of partners are very extensive, and the contract or other act of any member or members of the associated body in matters relating to the joint concern, is, in point of law, the contract or act of the whole, and consequently binding upon the whole, to the extent of rendering each liable for it individually as well as in respect of the partnership property. This power or authority does not extend to matters extraneous to the joint concern, nor even to matters which, though connected with it, are, by the ordinary usage of business, transacted with the express and formal intervention of each partner. Partners, though they should act in a fraudulent manner as respects their copartners, bind the firm in all matters connected with its peculiar dealings. Should one of the partners enter into a smuggling or other illegal transaction on the partnership account, the other partners are liable for the duties and penalties. When one of the partners has been made liable for the debts of the firm, he has his relief against the others for a portion of it.

Partners cannot be relieved from future liabilities to third parties without notice to them, and the world in general, that the partnership has ceased.

A partnership may, in the absence of an agreement to the contrary, be dissolved at any time either of the partners may so decide, but should this power be wantonly exercised to the injury of the other member or members of the firm, the party so exercising the power would be held for the damages he has caused. Where there is an agreement between the partners that the partnership shall continue for a specified time, it will be binding. An assignment of a partner's interest would work as a dissolution, and while such assignment would transfer to the assignee the entire interest of the partner, or assignor, it would not in any way give to the assignee the right of becoming a member of the firm. The death of one of the partners would

work as a dissolution of the partnership, but the heirs of the deceased partner would not become members of the firm. If one of the partners should, from any cause, become incompetent or unable to perform his duties, the partnership would become dissolved. A dissolution may take effect from the implied limitation of the partnership, as if the event had occurred for which the partners formed the partnership, or by the destruction of the subject matter of the partnership. Courts of equity have the power of dissolving a partnership, and will exercise this power whenever it can be made to appear that the object for which the partnership was formed have become impracticable or merely visionary, or, where it can be shown that one of the partners has become grossly immoral, or has wantonly abused his authority, or where he habitually absents himself from the partnership.

The dissolution of a partnership does not exonerate the partners from the liabilities created while the partnership was in existence, but in order to avoid future liabilities there must be notice given to all who have had dealings with the partnership. Such notice may be given by either circulars, written letters sent by mail, or by verbal notices given to the parties personally. Let the form be what it may, they are entitled to *actual* notice.

ARTICLES OF COPARTNERSHIP.

Articles of Agreement, made and concluded this second day of January, in the year of our Lord one thousand eight hundred and eighty-four, between John Doe, of Chicago, County of Cook and State of Illinois, of the one part, and Albert Roe, of the same place, of the other part.

The said parties have agreed, and by these presents do agree, to associate themselves as copartners in the art and trade of buying and selling all sorts of wares, goods and commodities belonging to the trade or business of merchandising; which said copartnership shall continue from the date of these presents, for, and during, and to the full end and term of four years next ensuing. The name, style, and title of such partnership shall be Doe and Roe.

For the purpose aforesaid, he, the said John Doe hath, upon the day of the date hereof, put into said partnership, as capital stock, the sum of two thousand dollars; and the said Albert Roe has also invested the like sum of two thousand dollars: both of which said sums are to be used, laid out and employed in common between the parties hereto, for the management of said business to their mutual advantage.

And it is hereby agreed between the said parties, each for himself respectively, and for his own special and particular part, in manner and form as follows:

That they shall not and will not at any time hereafter, during the period above named, exercise or follow the said trade, or any other, to their private emolument or advantage; but shall and will, from time to time, and at all times during said period (if they shall so long live), use their utmost endeavors, to the best of their skill and ability, for their mutual advantage, with the stock as aforesaid and its increase.

And also, that they shall and will, during the period aforesaid, discharge equally between them the rent of such premises as they may rent or hire, for the management and conduct of the trade or business aforesaid.

And that all profit, gain or increase, that shall or may arise from, or by reason of the said joint business, shall be equally and proportionately divided between them, share and share alike; and also all losses that shall happen in the said business, by bad debts, bad commodities, or howsoever otherwise, shall be paid by, and borne equally between them.

And it is further agreed, that there shall be kept, during the said period and joint business, perfect, just, and correct book accounts, wherein each of the said copartners shall enter and set down, as well all the money by him received and expended in and about the business aforesaid, as also all commodities and merchandise by him bought and sold, by reason and on account of the said copartnership, and all other matters and things in anywise belonging or appertaining thereto, so that either of them may at any time have free access thereto.

And also that the said copartners, once in twelve months, or oftener, if need shall require, upon the request of either of them, shall make and render each to the other, or to the executors and administrators of each other, a true and full account of all profits and increase by them and each of them made, and of all losses by them, or each of them, sustained; and, also of all payments, receipts and disbursements, and all other things whatsoever by them, or either of them, made, received and disbursed, acted, done and suffered in the said copartnership; and the account so made, shall and will clear, adjust, pay and deliver, each unto the other, at the time of making such account, their equal share of the profit so made as aforesaid.

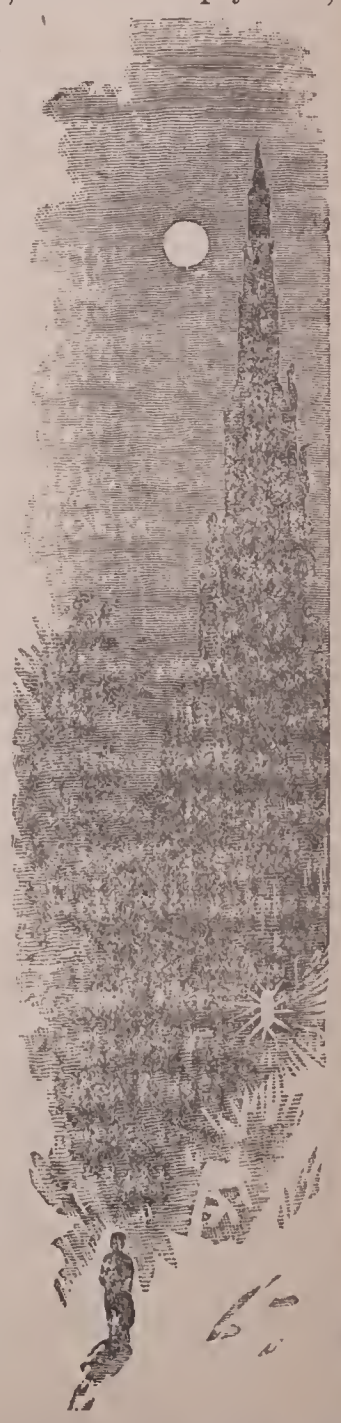
And that, at the end of the aforesaid period of four years, or other sooner determination of these presents (whether by the death of one of the parties hereto, or otherwise), they, the said copartners, each to the other, or, in case of the death of either, the surviving party to the executors or administrators of the party deceased, shall and will make a true, full, and final account of all things as aforesaid, and in all things well and truly adjust the same; and also, that, upon making such accounts, all and every the stock, as well as the gain and increase thereof, which shall appear, or is found, to be remaining, shall be equally apportioned and divided between them, the said copartners, their executors or administrators, share and share alike.

In Witness Whereof the said parties to these presents have hereunto set their hands and seals, the day and year first above written.

JOHN DOE. [*Seal.*]
ALBERT ROE. [*Seal.*]

Signed, sealed and delivered in presence of

JOHN WHITE.
AMOS GREEN.



ARBITRATION.

The law favors arbitration as a means of settling difficulties. Arbitration is where contesting parties submit the action, suit, or any or all matters in dispute, to the judgment of an indifferent person or persons, called an arbitrator or arbitrators, to decide the controversy; and where more than one is appointed, it is usual to appoint, or leave the arbitrators to appoint, an umpire, to whose sole judgment it is then referred. The decision, in any of these cases, is called an award, which is final if not set aside by a court for informality.

Any matter which may be a subject of a suit at law, may usually be determined by arbitration. Crimes would be an exception to this rule, as also might boundary lines of real estate.

The arbitrators proceed on the difference as judges, and not as agents of the parties who appointed them. It is the duty of the arbitrators to fix the time and name the place where the evidence relating to the matters in controversy are to be heard, and to notify the parties of these facts.

FORM OF GENERAL SUBMISSION TO ARBITRATION.

Whereas, differences have for a long time existed, and are now existing and pending, between John Doe, of Louisiana, County of Pike and State of Missouri, and Samuel Roe, of the same place, in relation to divers and sundry matters of controversy and dispute; ***Now, Therefore,*** we, the undersigned, John Doe and Samuel Roe aforesaid, do hereby mutually covenant, and to and with each other, that Joseph Brown, John White, and Wm. Black of said Louisiana, or any two of them, shall arbitrate, award, and determine of and concerning all and all manner of action and actions, cause and causes of actions, suits, controversies, claims, and demands whatsoever, now pending, existing, or held, by and between us, the parties aforesaid; and we do further mutually covenant and agree, to and with each other, that the award to be made by the said arbitrators, or any two of them, shall in all things by us and each of us, be well and faithfully kept and observed; ***Provided,*** however, that the award aforesaid be made in writing, under the hands of the said Joseph Brown, John White, and Wm. Black, or any two of them, and ready to be delivered to the said parties in difference, or to such of them as shall desire the same, on the second day of December, A. D. 1884.

Witness our hands and seals, this seventh day of November, A. D. 18 .

Signed, sealed, and delivered in presence of
AMOS GREEN.
JOHN SMITH.

JOHN DOE. [*Seal.*]
SAMUEL ROE. [*Seal.*]

At the time of submission of causes to arbitration, each of the parties in controversy should sign and deliver to the other or others, an Arbitration Bond, of which the following is the common form:

ARBITRATION BOND.

Know all Men by these Presents, That I, John Doe, of Louisiana, County of Pike and State of Missouri, am held and firmly bound to Samuel Roe, of the same place, in the sum of one thousand dollars, good and lawful money of the United States, to be paid to the said Samuel Roe, his executors, administrators, or assigns, for which payment well and truly to be made, I bind myself, my heirs, executors, and administrators, firmly by these presents.

Sealed with my seal and dated the seventh day of November, A. D. 18 .

The Condition of this obligation is such, that if the above bounden John Doe, his heirs, executors, and administrators, shall and do, in all things, well and truly abide by, perform and fulfill in all things the award, decision, and final determination of Joseph Brown, John White, and Wm. Black, appointed and named on the part and behalf of the said John Doe, as well as the said Samuel Roe, to arbitrate, award, order, and determine of and concerning all, and all manner of action and actions, cause and causes of actions, suits, controversies, claims and demands whatsoever, now pending, existing, or held now and between said parties; so that the said award be made in writing under the hands of the said Joseph Brown, John White, and Wm. Black, or any two of them, and ready to be delivered to the parties in difference, or to such of them as shall desire the same, on or before the second day of December, A. D. 18 ; then this obligation to be void, otherwise to remain in full force and virtue.

Signed, sealed, and delivered in presence of
JOHN WELLS.
RICHARD JONES.

JOHN DOE. [*Seal.*]

FORM OF AWARD BY ARBITRATORS.

To all to whom these Presents shall Come or may Concern, Send Greeting: Joseph Brown, John White, and Wm. Black, to whom were submitted as arbitrators, the matters in controversy existing between John Doe, of Louisiana, County of Pike and State of Missouri, and Samuel Roe, of the same place, as by their submission in writing, dated the seventh day of November, A. D. 1884, more fully appears; ***Now Therefore, Know ye,*** that we, the arbitrators mentioned in said submission, have first been duly sworn, according to law, and having heard the proofs and allegations of the parties, and examined the matters in controversy by them submitted, do make this award in writing, that is to say: (*Here include the conclusions of the arbitrators as to all matters submitted for their decision.*) And we do further award, adjudge and decree, that the said John Doe and Samuel Roe shall, and do, within ten days next ensuing the date hereof, seal and execute unto each other, mutual and general releases of all the actions, cause and causes of actions, suits, controversies, and demands whatsoever, for, or by reason of, any matter, cause or thing, from the beginning of the world down to the date of the said submission.

In Witness Whereof we have hereto subscribed these presents, this first day of December, A. D. 18 .

Signed, sealed and delivered in presence of
JOHN CAIN.
BENJ. RACER.

JOSEPH BROWN. [*Seal.*]
JOHN WHITE. [*Seal.*]
WM. BLACK. [*Seal.*]

Following the receipt of the above form of award from the arbitrators, the parties in controversy should execute and give to each other a mutual release, the following of which is the general form:

MUTUAL RELEASE ON AN AWARD.

Know all Men by these Presents, that I, John Doe, of Louisiana, County of Pike and State of Missouri, for and in consideration of the sum of one dollar to me in hand paid by Samuel Roe, of the same place, and in pursuance of an award made by Joseph Brown, John White and Wm. Black, arbitrators between us, the said John Doe and Samuel Roe, and bearing date the seventh day of November, A. D. 1884, do hereby release and forever discharge the said Samuel Roe, his heirs, executors and administrators, of and from all actions, cause and causes of actions, suits, controversies, claims and demands whatsoever, for, or by reason of any matter, cause or thing, from the beginning of the world down to the seventh day of November, A. D. 1884.

In Witness Whereof, I have hereunto set my hand and seal, this tenth day of December, A. D. 18 .

Executed in the presence of } JOHN DOE. [*Seal.*]
MARVIN GATES,
ALFRED DAY.

If, after the parties in controversy have submitted the matters in dispute to arbitrators, they, or either of them should, through any cause, decide to revoke the authority given to the arbitrators, it may be done by executing and handing to the arbitrators an instrument under seal, the following of which would be a proper and legal form:

FORM OF REVOCATION.

To Joseph Brown, John White and Wm. Black:

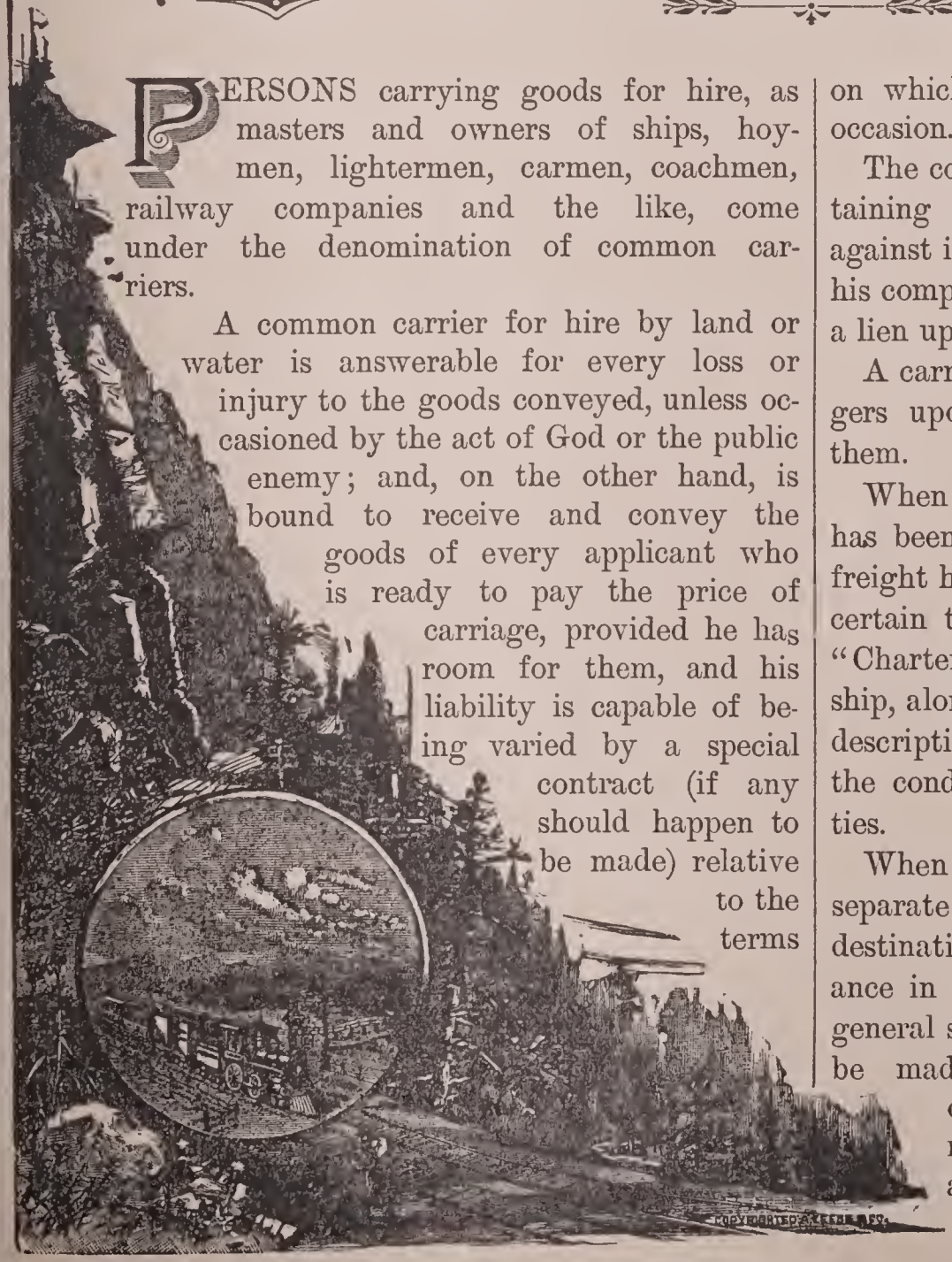
Take Notice, that I do hereby revoke your powers as arbitrators under the submission made to you made by John Doe and myself, in writing, on the seventh day of November, A. D. 18 .

Witness my hand and seal this twentieth day of November, A. D. 1884.

Witness: } SAMUEL ROE. [*Seal.*]
JOHN DANIEL.
JAMES TULLEY.

An award is to be sealed, addressed to all the parties, and opened in presence of all, or their attorneys, or with the consent of those absent indorsed on the award.

CARRIERS.



PERSONS carrying goods for hire, as masters and owners of ships, hoymen, lightermen, carmen, coachmen, railway companies and the like, come under the denomination of common carriers.

A common carrier for hire by land or water is answerable for every loss or injury to the goods conveyed, unless occasioned by the act of God or the public enemy; and, on the other hand, is bound to receive and convey the goods of every applicant who is ready to pay the price of carriage, provided he has room for them, and his liability is capable of being varied by a special contract (if any should happen to be made) relative to the terms on which goods are to be carried on any particular occasion.

The common carrier has the right of holding or detaining property which he carries until the charge against it is paid. If there be occasion, he may recover his compensation from the goods in any way in which a lien upon personal chattels is made productive.

A carrier may be excused for injury done to passengers upon proof that he took all possible care of them.

When an entire ship, or any principal portion of it has been hired to a person in consideration of the freight he is to pay, for the conveyance of goods, on a certain trip or voyage, it is known as a contract by "Charter Party." This kind of contract relates to the ship, alone. The charter party should contain a full description of the ship, the voyage, as well as all the conditions entered into by and between the parties.

When a master or owner of a ship contracts with separate persons to convey their goods to the place of destination, then the contract is said to be for conveyance in general ship. Where goods are shipped by general ship the master or owner of the ship causes to be made, signs and delivers to the owner or owner's agent of the goods shipped, an instrument known as a Bill of Lading, which is an acknowledgment on the part of the master

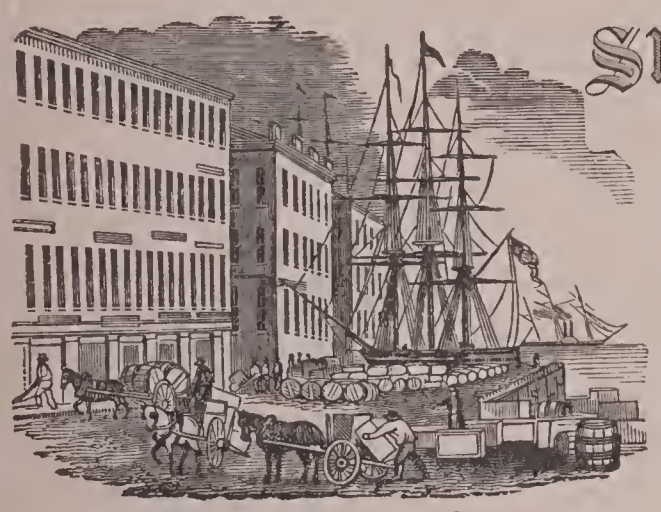
that the goods have been shipped on board his vessel, and that he will deliver at the port of destination to the person named in the bill, as consignee, or to his assigns, on the payment of the proper eharges, inevitable aceident, publie enemies, fire and all other dangers and aeeidents of the seas, rivers, and navigation of whatsoever nature and kind excepted.

Thus the master becomes personally responsible for the fulfillment of his engagement, as, also, the owner of the vessel becomes responsible notwithstanding he is not named in the bill of lading. The bill of lading beeomes a proper evidence of the title of goods shipped, and is transferable to such person or persons as the owner of the goods may eontraet with, whieh transfer would give to a *bona fide* holder a property in the goods represented in the bill of lading. The bill of lading implies that the goods are to be stowed in a safe plaee under deek; and if they should be stowed on deek without the shipper's eonsent, or in the absence of eustom, they are then at the risk of the ship-owner and master, and if the goods should be improperly stowed, through the negligenee or want of skill of the master, and in consequence the seaworthiness of the vessel should be affected, and there should be a loss by an act of God, or a peril of the sea, the master and owner would be held responsible for the loss. Carriers are held responsible for any and all losses whieh might have been avoided by a diligent exercise of prudence and skill. They are always insurers against their own negligence or want of skill, or, in other words, they are held for any loss that might have been avoided by an honest exercise of such prudenee and skill as would, under ordinary eireumstanees, be adequate to the execution of their trust and undertaking.

The eommon earrier has a right to refuse to receive goods, for carriage, unless he is paid for earrying them at the time they are offered; and if he should receive the goods without demanding pay in advanee, he would have the right to retain the goods for his eharges, or in other words, the law gives him the right of lien of them. This right of lien would also extend to the baggage of passengers until their fare is paid.

FORM OF A BILL OF LADING.

CHICAGO, JULY 2, 18 .



Shipped, *in good order and condition, by John Doe, as Agent and Forwarder for account and at risk of whom it may concern, on board the Morning Star, whereof John Roe is Master, now in the port of Chicago, and bound for Ogdensburg, N. Y., the following articles, as here marked and described, to be delivered in like good order and condition, as addressed on the margin, or to his or their assigns or consignees, upon paying the freight and charges, as noted below. All the deficiency in cargo to be paid for by the carrier, and deducted from the freight, and any excess in the cargo to be paid for to the carrier by the consignee. In case grain becomes heated while in transit, the carrier shall deliver his entire cargo and pay only for any deficiency caused by heating, exceeding five bushels for each 1000 bushels. (The dangers of navigation, fire and collision excepted).*

In Witness Whereof, *The said Master of said vessel hath affirmed to two Bills of Lading, of this tenor and date, one of which being accomplished, the other to stand void.*

FORM OF CHARTER PARTY.

This Charter Party, Made, concluded, and agreed upon this tenth day of June, in the year of our Lord one thousand eight hundred and eighty-four, between John Doe, master and owner of the vessel known as the "Golden Eagle," of the burthen of one thousand tons, of the one part, and Samuel Roe, of the City of Chicago, County of Cook, and State of Illinois, of the other part, ***Witnesseth:*** That the said John Doe, for the consideration hereinafter mentioned, hath granted and to freight let, and by these presents doth grant and to freight let, unto the said Samuel Roe, his executors, administrators, and assigns, the whole tonnage of the hold, stern, sheets, and half deck of the said vessel, from the port of Chicago, to the port of Milwaukee, in Wisconsin, in a voyage to be made in the said ship, in the manner following, that is to say: the said John Doe is to sail with the first fair wind and weather that shall happen next after the second day of July next, or before the first day of August next, from the said port of Chicago, with goods and merchandise of the said Samuel Roe, his factors and assigns on board, to Milwaukee, aforesaid, there to be delivered and discharged of her said cargo within ten days next after her arrival at the end of the said voyage; in consideration whereof the said Samuel Roe, for himself, his heirs, executors and administrators, and each and every of them, doth covenant, promise and agree to and with the said John Doe, his executors, administrators and every of them, by these presents, that the said Samuel Roe, his executors, administrators, factors or assigns, shall and will well and truly pay, or cause to be paid unto the said John Doe, his executors, administrators, and assigns, for the freight of the same ship on goods, the sum of two thousand dollars, within ten days after the discharge of the said goods at Milwaukee aforesaid, for the end of the voyage; and also shall and will pay for demurrage, if any shall be by default of him, the said Samuel Roe, his factors or assigns, the sum of twenty-five dollars a day, daily and every day, as the same shall grow due. And the said John Doe, for himself, his heirs, executors, and administrators, doth covenant, promise, grant and agree, to and with the said Samuel Roe, his executors, administrators, and assigns, and every of them, by these presents, that the said vessel shall be ready at the said port of Chicago, at —— wharf, to take in goods by the fifteenth day of June; and within ten days after the said vessel shall be ready at —— wharf as aforesaid, the said Samuel Roe doth grant, promise, and agree, to have his goods ready and put on board of said vessel, in order that she may proceed on her said voyage. And the said John Doe doth also covenant, promise, grant, and agree, to and with the said Samuel Roe, his executors, administrators and assigns, that the said vessel now is, and at all times during the said voyage shall be, at the best endeavor of the said John Doe, his executors and administrators, at his and their own proper costs and charges, in all things made and kept stiff, stanch, and strong, and well furnished and provided as well with men and mariners sufficient and able to sail, guide, and govern the said ship, as with all manner of rigging, boats, tackle, apparel, furniture, provisions, and appurtenances, fitting and necessary for the said men and mariners, and for the said ship during the voyage aforesaid.

In Witness Whereof, we have hereunto set our hands and seals, this tenth day of June, one thousand eight hundred and eighty-four.

Signed, sealed, and delivered in presence of
CALEB S. THORNILEY.
JAMES B. HOVEY.

JOHN DOE. [*Seal.*]
SAMUEL ROE. [*Seal.*]

LIMITATIONS.

THE various states have what are termed Statutes of Limitations. Limitation is a certain time assigned by statute within which an action must be brought, or other legal act done. The use of these statutes of limitation is to preserve the peace of the country, and to prevent those innumerable perjuries which might ensue if a man were allowed to bring an action for an injury committed at any distance of time. There is also the danger to the defendant that, if an action be long delayed, the documentary or other evidence of his rights may have been lost or destroyed; and also the hardship of finding himself unexpectedly deprived of what he had long had in possession.

In the different states, the periods of time within which the actions designated in the statutes must be brought, are: For recovery of real property, from five to twenty-one years—in most states, twenty years; for actions on judgments or on contracts under seal, ten to twenty years; for other contracts, six years or less.

INTEREST AND USURY.

INTEREST is the annual sum or rate agreed to be paid by the borrower of a sum of money to the lender for its use. The sum so lent is called the principal; the sum per cent agreed on as interest, the rate.

Generally, the rate of interest depends on the profit that may be yielded by its employment in industrious undertakings. "The rate of interest," says an authority, "is the measure of the net profit on capital. All returns beyond this on the employment of capital are resolvable into compensations under distinct heads, for risk, trouble, or skill, or for advantages of situation or connection." The rate of interest also varies according to the security for the repayment of the principal and the duration of the loan. If there is any degree of risk as to the repayment of the loan, the rate of interest must necessarily be higher to compensate for that risk.

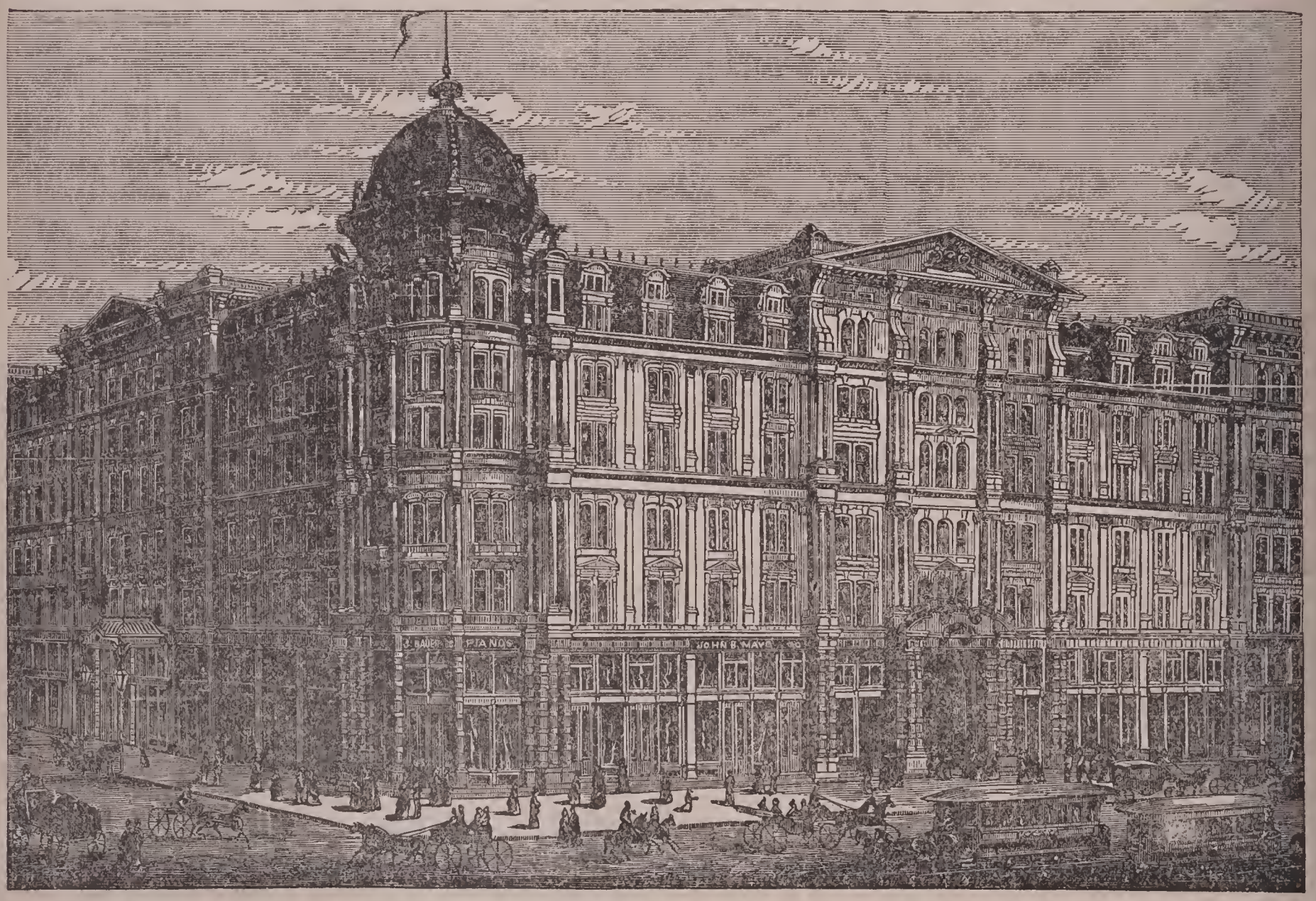
Usury is a term used to denote excessive or exorbitant interest, or the taking of a higher rate of interest than that established by law. In most of the states, usurious contracts are void.

Inn, Hotel, and Boarding House Keepers.

An, or hotel, is a place of entertainment for travelers. If an inkeeper opens his house for travelers, it is an implied engagement to entertain all persons who travel that way, and upon this universal assumption an action will lie against him for damages, if he, without good reason, refuses to admit a traveler. Innkeepers are also responsible for the safe custody of the goods of their guests while they are under their roof; but if the goods are lost through any negligence of the owner himself, then the responsibility of the innkeeper ceases. An innkeeper may retain the goods of his guest until the amount of his bill is paid.

A boarding-house is not an inn, nor is a coffee-house or eating-room. A boarding-house keeper has no lien on the goods of a boarder, neither is he responsible for their safe custody as is the innkeeper.

We have authority, however, for saying that a boarding-house keeper is liable for loss caused by the negligence of his or her servants. An innkeeper is liable for a loss without negligence.



The undertaking of an innkeeper is a general one, to which the public is a party, and imposes upon him a general or public obligation to receive as guests, and upon the same terms, all proper persons who travel that way. If an innkeeper refuse, without proper reasons, to receive a traveler as a guest in his hotel, or to furnish him victuals or lodging, upon his tendering him a reasonable compensation for the same, he would not only be held for damages to the injured party, but may also be publicly prosecuted, indicted and fined. All persons entertained at a common hotel are deemed to be guests.

An innkeeper, like a common carrier, becomes an insurer of the goods intrusted to him by his guests, and can limit his liability only by an express agreement, or by a special contract with the guest.

Rights and Duties of Farmers.

THE farmer's title to his farm may arise from possession, inheritance, purchase, or hiring. He may have and hold it by prescriptive right. If he has held uninterrupted possession for twenty years, more or less (the period is longer or shorter in the different states), the land is his, unless a claim is made by a party having the right, but who, from disability, was unable to assert it.

In the United States there is no right of primogeniture. Real property may come by inheritance, as commonly understood, *i. e.*, by will of the deceased, or under the law as heir of the deceased.

By purchase, the farmer gets his title in the deed, the only mode of transfer of land in this country, as indicated in the matter under the head of Deeds, which see. Farms may be bought at auction. If so, the plan or description of the property, in any case, must give true information, or the purchaser need not take it.

AN AMERICAN FARM SCENE.

FIXTURES.

Much importance is attached to the boundaries. These should be clearly determined, in order to avoid trouble arising from their inaccuracy. The question, what does the farmer get, is answered by the boundaries. Within them, he gets whatever there may be of ground or earth; as meadows, pastures, woods, waters; also, dwelling-houses and other improvements; for, with the conveyance of land, the structures upon it pass. Land is considered to extend indefinitely upward, and downward to the center of the globe.

The question as to what are, or are not fixtures, is of some importance, as determining the rights of landlord and tenant, heir and executor, etc. Fixtures in general are personal chattels let into the earth, or cemented or otherwise fixed to some erection previously attached to the ground, and are thus legally immovable. If they be entirely clear of the soil, they are not

fixtures, and may be carried off at pleasure. Hence a tenant may construct erections—even barns, sheds and the like—upon blocks, rollers, pillars or plates, so that they shall not be deemed fixtures but remain movable chattels. The general rule is, that whenever a tenant has affixed anything to the premises during his term, he cannot again sever it without the landlord's consent. To this rule, however, various exceptions have been made in favor of what are termed trade fixtures. A tenant may safely remove such things as he has fixed to the land for purposes of trade or manufacture, provided the removal cause no material injury to the estate.

As regards agricultural fixtures, a tenant of a farm or lands shall, with the consent in writing of the landlord for the time being, at his own cost erect any farm-buildings, either detached or otherwise, or put up any other building, engine or machinery, either for agricultural purposes or for the purposes of trade and agriculture (which shall not have been put up in pursuance of some obligation in that behalf), then all such buildings, engines and machinery shall be the property of the tenant and shall be removable by him, notwithstanding that the same, or any part thereof, may be built in or permanently fixed to the soil; so as the tenant, in making such removal, do not in anywise injure the land or buildings belonging to the landlord, or otherwise to put the same in like condition as they were in before the erection of anything so removed. But the tenant, before making any such removal, should give the landlord or his agent due notice of his intention to do so, and the landlord or agent may purchase the things proposed to be removed. Another exception to the general rule is in favor of such fixtures as are put up for ornament or domestic use, as hangings, ornamental chimney-pieces, stoves, fire-frames, furnaces, gates, looking-glasses, etc.

When an owner sells his farm, such things as mentioned above go with it, unless he expressly reserves a right to retain them.

ROADS, TREES, ETC.

An adjoining road is, to its middle, owned by the farmer, whose land it bounds, unless there are reservations to the contrary in the deeds through which he derives title. But this ownership is subject to the right of the public to use it as a road. If the farmer wishes to do so, he may plant trees next to the road, and these must be respected as his property. They may be removed by officers in charge of roads, but private parties are liable for their wanton injury. A farmer who places anything in the road, as wood, sled or cart, or any permanent structure, is liable to any party who suffers harm from running against them.

At the time of the purchase of a farm, the purchaser is, of course, entitled to all the trees upon it, but not those cut for sale or fuel.

If a tree grows so as to come over the land of a neighbor, the latter may cut away the parts which so come over, for he owns his land and all that is above or below it. If it be a fruit tree, he may cut every branch or twig which comes over his land, but he cannot touch the fruit which falls to the ground. The original owner of the tree may enter peaceably upon the land of the neighbor and take up the branches and fruit and take them away.

All the manure, whether spread on the fields or is contained in the barn-yard or other place, will go with the farm when the farmer sells the land. If the farm be let to another, the manure goes to the lessee, unless the lessor reserves the right to take it away. Manure may be removed before selling the farm, if it is not done secretly or in a way prejudicial to the purchaser

of the property. Or, the manure may be sold separately.

The rocks and stones on the land belong to the owner of the farm. It is unlawful for any one to take away even a pebble.

RIGHT OF WAY.

A private right of way may be grounded on a special permission, as where the owner of the land grants to another the liberty of passing over his land; in which case it is confined to the grantee alone, and cannot be assigned or conveyed to another. It may also be to the grantee, his heirs and assigns, being owners of such a house or close; in which case the right passes with the ownership of such property. The grantor may also impose such restrictions upon his grant as he thinks proper. A private right of way may be also constituted by prescription, as where all the owners and occupiers of such a farm, or all the inhabitants of such a hamlet, have for a long time used such ground, such usage supposing an original grant.

To gain a private right of way over a farm by purchase or grant, it must be by deed, full and regular, and executed in the same way as a deed of the land itself. If an arrangement be made in an oral manner or in a simple form in writing, but not in a formal manner by deed under seal, notwithstanding the grantor receive full payment from the grantee, it would be in law revocable. This right of way being in the nature of an interest in land, it is by strict law to be conveyed by a deed.

A right of way acquired by prescription, as indicated, depends on a longer or shorter period, varying according to usage of different states or countries. In most states of the Union the period is twenty years, but in some states only fifteen; and the way must have been used without opposition or peaceably, and while a claim was made to do so, not by permission or consent of the farmer. A way only very rarely used, or used against the protest of the farmer—or even with his tacit consent—would not be legally used, no matter how long such use had continued. A way must be in a regular and uniform place, since no man can acquire the right by prescription to wander over the land of the farmer where he pleases, or where he finds it suits his convenience.

This right of way is obtained, not necessarily by a single owner who has used it for twenty years, but it is sufficient if successive owners have used it within that length of time. If gained only by using it for a particular purpose, as for getting out wood from a wood lot, that would not give the right to use it for all purposes, after the wood had been cut off and the lot was covered over with improvements.

If a back lot be sold, it is necessary to grant a right of way over your remaining land in order to enable the buyer to pass to and fro in getting to any highway; otherwise his lot would be useless. This right, by necessity, is given by law. Should you sell to another one-half, or all that portion of your land lying next a highway, and have no way out other than over the part sold, the law would give you the right to cross the land of the buyer, whether the deed says anything about it or not. Though by your deed there be a warrant to the effect that the land is to be free and not in any way incumbered, the right of way will be given. "Necessity knows no law." This right of necessity lasts as long as the necessity continues, and then it ceases. When the land in the rear is, from the laying out of a new highway, made accessible from the other side, the owner of the rear land can no longer cross over the front portion that he sold and over which necessity compelled him to pass. So long as it is necessary to cross over another man's land, you must go as you are directed if the way be reasonable. If the way should become suddenly obstructed by natural causes, as a washout, something falling in the road, or debris piled so as to trench on the way, you would be allowed by law to deviate from the track and pass around the obstruction until you had opportunity to make repairs or remove obstructions. You must keep the track clear yourself. If there be no stipulations to the contrary, you have the right to make suitable gates or bars at the entrances from the highway, and these must be respected by the other party, who will not be allowed to leave them open so that his cattle may enter upon your land or your cattle get out.

Rights of way as above described are likely to become nuisances to the farmer, and sometimes lead to judicial contests.

RAILROAD LINES THROUGH FARMS.

Railroad lines are extended over the land of the farmer, as a rule, by virtue of an easement, and not by fee in any land that a company takes by law for a roadbed. If a railroad company buys the land of a farmer, of course the company's right to it is absolute, and in some states a railroad company may have this absolute ownership when the land is seized and condemned for railroad uses contrary to the will of the owner. If the company has only an easement or right of way, then the exclusive rights of property in the land and the

trees and herbage upon it belong to the farmer. But the company would have the right to remove any trees, buildings or other objects which may be within the strip of land over which the line is constructed, and which interfere with the operation of the line. It may be taken as understood that the farmer would not be allowed, if he were so disposed, to go upon the strip that the railroad company was authorized to use, and cut and carry away what was growing thereon, or remove turf or soil just as he pleased; and if a stranger should do so, he would be liable to the farmer for so doing.

If a railroad line be changed and the road-bed in the farmer's land is abandoned by the company, the land, having been taken for railroad purposes by law, reverts to the farmer, who may reoccupy it.

As regards the fencing on both sides of the road-bed, it is generally provided by statute that the railroad companies shall build and maintain it. A railroad company is liable for any injury to the domestic animals which stray on the road and which belong to the farmer whose land joins the railroad line. If there be no law requiring a railroad company to fence, then it is the duty of the farmer to keep his animals off the road; for the company, unless from negligence in running the train, is not liable for injury done to the animals. Railroad companies are not liable for injuries to animals of farmers whose lands do not join their lines, unless through negligence in running the animals down.

WATER RIGHTS.

As regards water rights, the farmer may make reasonable use of streams on his own land. He may dig or cut the channel of a stream on his own land so as to alter its course, but he cannot divert it from the land of his neighbor, nor cause it to enter his neighbor's land by other than its natural channel. He may dam the stream in order to form ponds on his own land, but not subject the adjoining land to the damage of overflow. If the stream be small, so as to afford no more water than he requires for reasonable uses, then, perhaps, he would have a right to use the whole of it. Otherwise, the farmer would not have the right to use all, or monopolize the stream to the disadvantage of his neighbor.

Where an adjoining owner dams a stream so as to flow on another's land, the owner of such land may enter on the land of the one who has so dammed the water, and remove the portion of the dam which caused the overflow. Or where a natural stream becomes obstructed through any cause, one would have the right to enter on another's ground and remove the obstruction, so the water may flow freely and relieve his land from the overflow; nor would the owner of the land, in such case, have any just cause of complaint if the rubbish from such stream was deposited on its banks.

A farmer owns to the middle of the main current of an adjoining stream, if it be not navigable.

A farmer has a right to all the surface water on his land —that which does not flow, but results from falling rains and melting snows, or oozes out of the ground from springs or marshy places. He can use it all on his own land, and need not let any of it flow on to a neighbor's land unless he chooses. And if he chooses to do so, he can turn it all off onto his neighbor's land, even to the injury of the latter. When surface water is gathered into a stream, with bed and banks, it is flowing water and is then subject to different rules. A farmer can protect himself from surface water by building an embankment at the edge of his own land, although by so doing he may make quite a pond to the injury of his neighbor's crop near the embankment. While a farmer may turn his surface water onto your land without being liable, the surveyor of a highway may similarly turn the road-wash on you, even to sweep sand and gravel into your best mowing grounds.

Should your neighbor, in digging down on his own land, even near the line, by chance cut off the underground water-course that feeds your well, so as to cause your well to run dry, you would have no right in law to proceed against him. But he must be careful not to dig so near as to cause a caving in of your land into the excavation.

As regards water rights and drainage, the law varies in different states.

TRESPASS.

IN THE limited sense in which it is here used, the word trespass signifies no more than an entry on another man's ground without lawful authority, and doing some damage, however inconsiderable, to his real property. The common law regards every entry upon another's land, (unless by the owner's leave, or in some very particular cases), as an injury or wrong, for satisfaction of which an action of trespass will lie; but determines the quantity of that satisfaction by considering how far the offense was wilful or inadvertent, and by estimating the value of the actual damage sustained.

A man is not only answerable for his own trespass, but that of his cattle also, and besides his common remedy by action, the law gives the injured party the power to distrain the cattle thus doing damage, till the owner shall make him satisfaction.

A farmer may order a trespasser off from his land, and if the trespasser refuses to go, then the farmer may use such force as is necessary to effect the object. But he must do the trespasser no grievous bodily injury, nor use any more force than is required in such a case. The farmer may call for help, and, if necessary, seize, bind and carry off the trespasser, and then release him.

Crossing another's land, with the owner's permission (without regard to the number of years), would not give an acquired right to so continue. To gain the right to cross another's premises, it must appear that such crossing must have been without the owner's permission, and through a legal claim to do so. Where others have been in the habit of passing to and fro on an owner's premises, and the owner desires such crossing to cease, it is advisable for him to cause notices to be put up ordering all parties to cease crossing his premises under penalty of being considered trespassers.

The statutes of some states makes wilful trespass a criminal offense, but usually trespass is considered a civil offense, and the owner's remedy would be through an action at law for damages, which, at best, is a tedious process, and does not always insure satisfactory results.

But, where a person enters another's premises for the ostensible purpose of purloining fruit or other property, such entry would be considered a crime, and the person so entering could be criminally punished, whether the person has accomplished his object or not, and the law gives to the owner the right to forcibly put such persons off his premises, but would not be allowed to use undue violence. Owners of land are not permitted by law without duly posting notices to that effect, to place any instruments on their premises which are calculated to kill or maim those who might enter on the premises. If another's fowls should come on an owner's land and injure his growing crops he would have the right of action against the owner for the damage they had caused him, but should he destroy them, he could be held for their full value, notwithstanding he may have repeatedly ordered the owner of the fowls to keep them off his premises, and warned him that if he did not do so he would kill them.

DAMAGE BY FIRE.

A FARMER may kindle a fire on his own land, but in doing so he must exercise due caution, in order to prevent it from spreading to the premises or house of his neighbor. If the latter suffers damage or loss through the negligence of the former, an action for damages will lie against the farmer.

If the owner of a farm has materials, as brush, dry grass, etc., which he would burn up or dispose of in some way, he should carefully note whether it would not be best to rid himself of such materials in some way other than by fire. This is specially incumbent upon him if his neighbor's fences, woods, sheds, etc., are quite near, and still more so if the season be dry and all combustible things are therefore extremely susceptible to the danger of burning.

But one's own negligence does not, it seems, at all times render them responsible for the results of a fire caused by their carelessness; unless it can be made to appear that the fire was caused intentionally on the part of the one who set it in operation, he would not be held for damages.

If a person should carelessly drop fire from a pipe, or in any other careless manner, on his own premises, from which the flames should extend to, and consume an adjoining owner's property, the one so causing the fire to spread would not be responsible in law for such damage, as it would be considered punishment enough that the careless party suffer the loss of his own property.

Nor would one be held for damages by a fire which originated through causes beyond his control, even though he was careless after the fire ignited and permitted it to go out of his control.

Should a sportsman while out hunting carelessly set fire to your woods, and if the fire should spread in such a manner as to destroy your fences, crops, out-buildings, and house, or any of them, he would be responsible to you for the loss so occasioned, notwithstanding that he may have put forth extraordinary effort to quell the fire; he would also be responsible for all incidental damages arising from the fire, as, if the sparks from the fire should be blown by wind from one farm to another, the entire loss would be attributable to the first cause, and the one who wrongfully set the fire in operation would be held for the remote, as well as the immediate loss by the fire.

If a farmer loses his house, or other building, by fire thrown from the locomotive or cars, the railroad company is liable for the loss if it be occasioned by negligence on the part of the company or their employes.

As a general rule, the railroad company, or companies, would likely be answerable in such cases, with or without negligence.

As the liability from fire communicated from locomotive engines has become so great there has been statute laws passed in many of the States by which the railroad companies, or the lessees of the road, are held responsible for all damages arising from fire from this cause, and this, irrespective of any carelessness on the part of the company or its employes.

HIRING A FARM BY LEASE.

A written bargain of this kind will suffice if the description of the land be fairly definite. The law will seek to carry into effect the meaning of the parties to a lease.

As to the renewal of a lease, the lessor is not bound, except in case of an express covenant to do so. This express covenant may be in the lease or in a separate paper.

Leases are made to contain provisions to the effect that the lessor may enter and expel the tenant on

account of non-payment of the rent, or that the tenant forfeits the lease and all rights on account of non-payment of the rent. The lessor must first make a demand for the rent due and for the exact amount, and on the day it becomes due and payable; he must make this demand of the tenant himself, and at a certain place, if so mentioned in the lease. Otherwise, his re-entry will not be justified.

When a landlord makes a bargain with one who becomes his tenant, he should give assurances that his farm will answer the purpose it is proposed to put it to. He should know the defects or ill condition of his land, and let these be understood by the intending lessee. If the latter finds he has been deceived; that the premises will not suit his purpose, and he cannot use it as he intended, then the lessee may reject the lease, and the lessor may not be able to enforce his claim against him.

A farm that is leased to a tenant may be sold subject to the lease, and the buyer becomes the lessor. Or, the owner of the farm may sell a part of it, or may sell the whole in parts to different parties, and the relations of the hirer and lessee would be the same. But now there must be an apportionment of rent. The tenant will pay the same rent, but will pay it to the different parties entitled to it, each his share. In case of the death of a lessor, before the expiration of the term for which the farm is leased, the lessee is liable to the executors or administrators of the deceased for the rent which accrued before his death, and to the heir or heirs afterward.

There should be an understanding between the lessor and the lessee of a farm to the effect that it should be properly cultivated and kept up in accordance with the requirements of good husbandry. This should be set down in the lease. Various things relating to how the farm shall be used, such as growth or rotation of certain crops, cutting wood, what portions of land should be broken up and sown, distribution of manure, etc., all may be set down and agreed upon in the lease.

The owner of a farm may hire it out on shares, the owner furnishing to the occupier such tools as may be agreed upon, and the latter paying to the former a certain proportion of the produce as agreed upon.

HIRING OF HELP.

In this country the relation of the hired and the hirer is in the nature of a contract. A farmer may make such a bargain as he wishes to with the man he hires, or the latter may go to work without any words or arrangement with regard to just what he shall do and what he shall get for his services. He commences to work with the knowledge and consent of the hirer. Where a particular bargain is made, to pay so much for a particular kind of work, etc., the parties will be held to their contract. If no particular bargain, or no bargain is made, the law will settle the matter for the parties by presuming that the hired man has done his work reasonably well, or as well as usual in such cases, and the farmer is bound to pay him a fair price, according to custom, or as determined by the jury which passes on the case.

If a man hires out to work for certain wages, for a certain time, but leaves his work before the time contracted for has expired—if he leaves without sufficient cause—he forfeits all his wages, and is not entitled to any part of them, and would also be held responsible to his employer for any damages that might arise through having left at a time when his services were much needed. If a man has agreed to work for another for one year at a stipulated price per month, and should leave the farmer, without just cause, just at or before harvest time, and the farmer should be compelled to pay twenty dollars extra per month for another person to supply his place, he would have a right of action, and could recover the overplus of twenty dollars for each month up to the expiration of the contract; in such case the workman could not claim *any* compensation for the work he had previously done and for which he had not received pay; this will also be applicable in the hiring of help whether by the day, month or year, or by the contract to complete a certain amount of work; as if one is employed to erect and complete a certain building for a price mentioned, and without just cause should abandon the work before it is completed, he would not be entitled to pay for what he had done.

If a farm laborer should be guilty of any misconduct so as to justify the farmer in discharging him before the expiration of the contract, he might collect from the farmer the amount the services were actually worth.

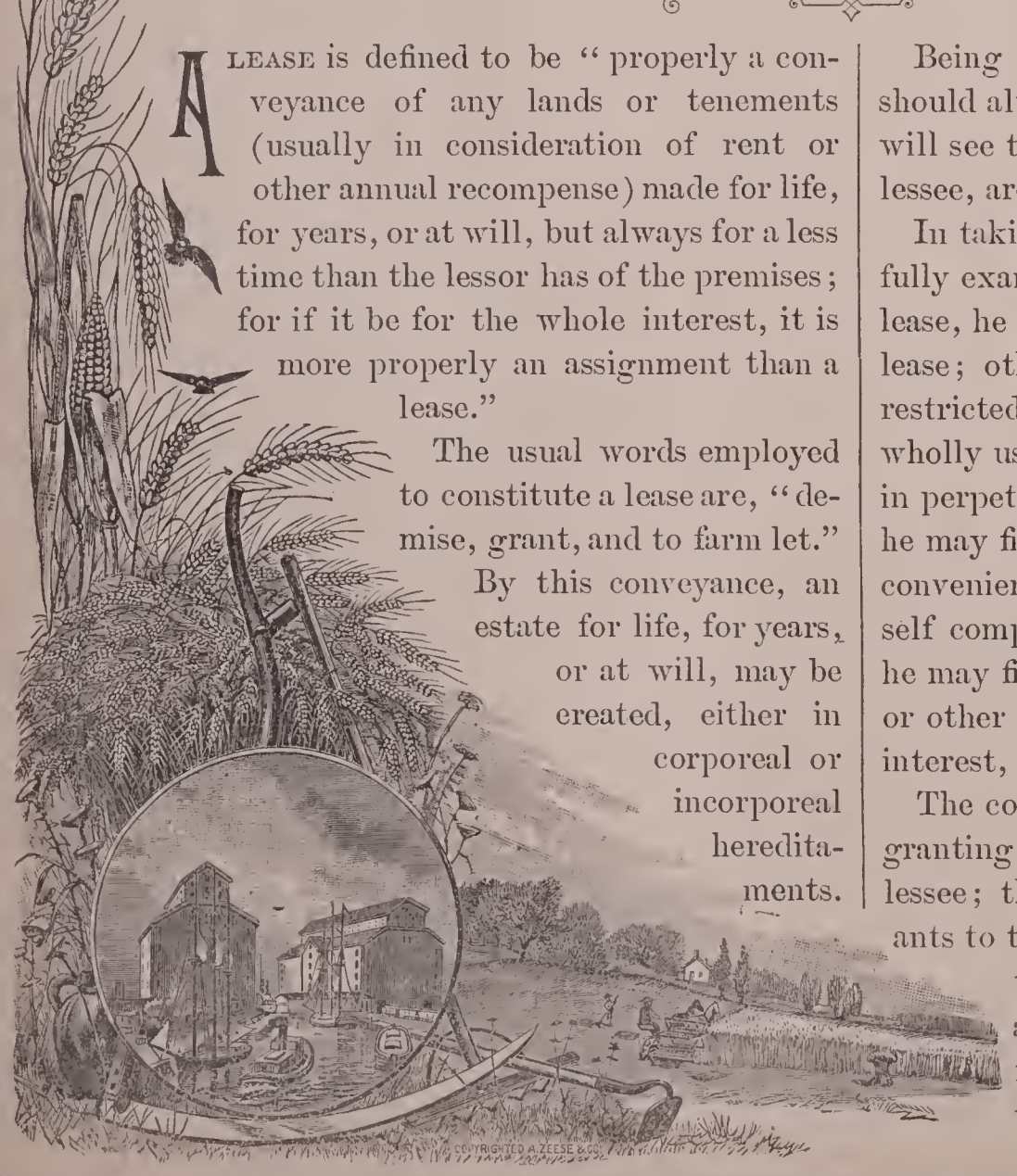
If the laborer should have just cause for quitting work before his time has expired, he would be allowed to do so, and could compel his employer to pay him for what he had already done. If the laborer should become physically incapacitated, through any cause, from performing that for which he was employed, he would be exeusable for quitting, or, if any contagious disease should become prevalent in the neighborhood, or in the family of the employer, would be a proper excuse for leaving the employer.

Should the farmer ill-treat his help, as by not furnishing them with sufficient or proper food, they would be excusable for leaving his serviee.

If the employer should require his help to perform unnecessary or unlawful work on Sunday, it would give them good cause for leaving before the expiration of their time, but not so, where the work required on Sunday is necessary farm work, such as the care of stock, and what is ordinarily known as "farm chores," etc.; for all such work the hands are not entitled to extra compensation.

A farmer is responsible for the culpability of his hired help in so far as this: If he ordered his hired man to steal from his neighbor, he would, together with the thief, be responsible. Without his order or assent, the farmer would not be responsible for the wrong-doing of his hired man. But a farmer is responsible on account of the extension of the rule pertaining to negligence to his hired help, as, through the carelessness or mistake of his hired man, the property of his neighbor might be damaged. Thus, if the farmer ordered his hired man to burn a pile of brush in a safe place, and through the carelessness of the man the neighboring premises caught fire and was damaged, the farmer would be liable for the direct effeets and consequences of the fire.

The attention of farmers is directed to the matter given under the head of Leases.



LEASES.

A LEASE is defined to be "properly a conveyance of any lands or tenements (usually in consideration of rent or other annual recompense) made for life, for years, or at will, but always for a less time than the lessor has of the premises; for if it be for the whole interest, it is more properly an assignment than a lease."

The usual words employed to constitute a lease are, "demise, grant, and to farm let." By this conveyance, an estate for life, for years, or at will, may be created, either in corporeal or incorporeal hereditaments.

Being an instrument of much importanee, a lease should always be drawn by a respeetable attorney, who will see that all the conditions, in the interest of the lessee, are fulfilled.

In taking a lease, the tenant's solicitor should carefully examine the covenants, or if he take an underlease, he should ascertain the covenants of the original lease; otherwise, when too late, he may find himself so restricted in his occupation that the premises may be wholly useless for his purpose, or he may be involved in perpetual difficulties and annoyances; for instanee, he may find himself restricted from making alterations convenient or necessary for his trade; he may find himself compelled to rebuild or pay rent in case of fire; he may find himself subject to forfeiture of his lease, or other penalty, if he should underlet or assign his interest, carry on some partieular trade, etc.

The covenants on the landlord's part are usually the granting of legal enjoyment of the premises to the lessee; the saving him harmless from all other claimants to title; and also for future assuranee. On the tenant's part, they are usually to pay the rent and taxes; to keep the premises in suitable repair; and to deliver up possession, when the term has expired.

If the landlord agree to pay all the rates and taxes, it should be so set down in the lease. If the tenant is to be responsible for taxes, it must be expressly agreed in the lease that he shall be.

Unless there be a covenant against assignment, a lease may be assigned, that is, the whole interest of the lessee may be conveyed to another, or it may be underlet; if, therefore, it is intended that it should not, it is proper to insert a covenant to restrain the lessee from assigning or underletting. Tenants for terms of years may assign or underlet, but tenants at will cannot.

A tenant who covenants to keep a house in repair is not answerable for its natural decay, but is bound to keep it wind and water tight, so that it does not decay for want of cover. A lessee who covenants to pay rent and keep the premises in repair, is liable to pay the rent although the premises may be burned down.

If a landlord covenant to repair, and neglect to do so, the tenant may do it, and withhold so much of the rent. But it is advisable that notice thereof should be given by the tenant to the landlord, in the presence of a witness, prior to commencing the repairs.

A tenant must deliver up possession at the expiration of the term (the lease being sufficient notice), or he will continue liable to the rent as tenant by sufferance without any new contract; but if the landlord recognizes such tenancy by accepting a payment of rent after the lease has expired, such acceptance will constitute a tenancy; but previous to accepting rent, the landlord may bring his ejectment without notice; for the lease having expired, the tenant is a trespasser.

All notice, of whatsoever description, relating to tenancies, should be in writing, and the persons serving the said notice should write on the back thereof a memorandum of the date on which it was served, and should keep a copy of the said notice, with a similar memorandum attached.

Houses are considered as let for the year, and the tenants are subject to the laws affecting annual tenancies, unless there be an agreement in writing to the contrary.

No consideration will waive the payment of the rent, should the landlord insist on demanding it. Even should the house be burned, blown or fall down, the tenant is still liable for rent; and the tenancy can only be voidable by the proper notice to quit, the same as if the house remained in the most perfect condition.

The landlord himself is the person most proper to demand rent. He may employ another person, but if he does, he must authorize him by letter, or by power of attorney; or the demand may be objected to.

When an agent has been duly authorized, a receipt from him for any subsequent rent is a legal acquittance to the tenant, notwithstanding the landlord may have revoked the authority under which the agent acted, unless the landlord should have given the tenant notice thereof.

A tenant should be careful of his last quarter's receipt for rent, for the production of that document bars all prior claim. Even when arrears have been due on former quarters, the receipt, if given for the last quarter, precludes the landlord from recovery thereof.

When either the landlord or tenant intends to terminate a tenancy, the way to proceed is by a notice to quit, which is drawn up in the two following ways:

LANDLORD'S NOTICE TO LEAVE AT END OF TERM.

(*Name and address of tenant.*)

Sir: Being in the possession of a certain messuage or tenement, with appurtenances, situate (*describe the premises briefly*), which said premises were demised to you by me for a certain term, to wit: from the.....day of.....A.D. 18 .., until the..... day of.....A. D. 188.., and which said term will terminate and expire on the day and year last aforesaid, I hereby give you notice that it is my desire to have again, and repossess the said messuage or tenement, with the appurtenances, and I therefore do hereby require you to leave the same upon the expiration of the said hereinbefore mentioned term.

Witness my hand this...day of...A. D. 188..

(*Witness.*) (SIGNATURE.)

LANDLORD'S NOTICE TO QUIT FOR NON-PAYMENT OF RENT. SHORT FORM.

STATE OF..... .....18 ..

To (*Name of tenant*). You being in possession of the following described premises, which you occupy as my tenant, (*here describe the premises sufficiently to identify them*), in (*city, town, or county, as the case may be*), aforesaid, are hereby notified to quit and deliver up to me the premises aforesaid, in fourteen days from this date, according to law, your rent being due and unpaid. Hereof fail not, or I shall take a due course of law to eject you from the same. (SIGNATURE.)

(*Witness.*)

A notice to quit on account of non-payment of rent, may be given at any time, and will be effective at the end of the period, which is determined by law. The day on which the tenant must quit should be specified.

SHORT FORM OF LEASE, WITHOUT CONDITIONS.

This Indenture, made this.....day of..... A. D. 18.., between.....of.....in the County of.....and State of .....of the one part, and..... of the.....of the other part:

Witnesseth, That the said.....for the consideration hereinafter expressed, hath demised, granted and leased, and by these presents doth hereby demise, grant and lease unto the said.... and.....assigns .....together with all the privileges and appurtenances thereunto belonging. TO HAVE AND TO HOLD the above described premises for and during the term of..... years from the date hereof.

And the said.....doth covenant and agree to pay the said .... or his assigns, the sum of..... dollars, as yearly rent for said premises, in..... equal payments of .....dollars each, at the expiration of each and every.....months from date, during the continuance of this Lease.

In Witness Whereof, the said parties have to this and one other instrument of the same tenor and date interchangeably set their hands and seals the day and year first above written.

Signed, sealed, and delivered, in the presence of .... [*Seal.*]

.... [*Seal.*]

FORM OF LEASE BY GRANT, IN USE IN THE WESTERN STATES.

This Indenture, made and entered into on the second day of January one thousand eight hundred and eighty-four, by and between John Doe, of Memphis, Tennessee, party of the first part, and Samuel Roe, of the same place, of the second part:

Witnesseth, That the said party of the first part, in consideration of the rents reserved, and the covenants hereinafter contained, does hereby grant, demise, and to farm let, unto the said party of the second part, the ground floor, cellar, second and third stories of the premises known as 487 DeKoven street, in the City of Memphis.

To Have and to Hold the Same, With all the rights, immunities, privileges and appurtenances thereto belonging, unto the said party of the second part, and his executors, administrators and assigns, for and during the full end and term of three years, commencing on the first day of March, 1884, under and subject to the stipulations hereinafter contained, the said party of the second part yielding and paying to the said party of the first part, for the said premises, the annual rent of six thousand dollars, payable in monthly payments; that is to say, five hundred dollars in hand at the ensealing and delivery of this instrument, five hundred dollars on March first next, and five hundred dollars on the first of each ensuing month thereafter, until the above-named sum of six thousand dollars shall have well and duly been paid; which rent the said party of the second part, for himself and his executors, administrators and assigns, covenants well and truly to pay, at the times aforesaid.

And the said party of the second part covenants and agrees that if the rent aforesaid should at any time remain due and unpaid, the same shall bear interest at the rate of eight per cent per annum, from the time it so becomes due, until paid. And the said party of the second part further covenants and agrees that it shall be lawful for the said party of the first part, and those having freehold estate in the premises, at reasonable times, to enter into and upon the same, to examine the condition thereof; and also that the said party of the second part and his legal representatives shall and will, at the expiration of this lease, whether by limitation or forfeiture, peaceably yield up to the said party of the first part, or his legal representatives, the said premises, in the condition received, only excepting natural wear and decay, and the effects of fire; and that the said party of the second part, for and during all the time that he or any one else in his name, shall hold over the premises after the expiration of this lease, in either of said ways, shall and will pay to said party of the first part double the rent hereinbefore reserved. Also the said party of the second part further covenants and agrees that any failure to pay the rent hereinbefore reserved, when due and within ten days after a demand of the same, shall produce an absolute forfeiture of this lease, if so determined by said party of the first part, or his legal representatives. Also that this lease shall not be assigned, nor the said premises, or any part thereof, underlet, without the written consent of the said party of the first part, or his legal representatives, under penalty of forfeiture. And that all repairs of a temporary character, deemed necessary by said party of the second part, shall be made at his own expense, with the consent of the said party of the first part, or his legal representatives, and not otherwise.

Provided Always, And these presents are on this express condition, that if the said party of the second part, or his legal representatives, shall fail to pay the rent hereinbefore reserved, for the space of ten days after the same shall have become due, or shall fail to perform any of the covenants hereinbefore entered into on his and their part, then the said party of the first part shall be at liberty to declare this lease forfeited, by serving a written notice to that effect on the said party of the second part, or his legal representatives, and to re-enter upon and take possession of the demised premises, free from any claim of the lessee or any one claiming under him. And all estate herein granted shall, upon service of such notice, forthwith cease, and said lessor, his heirs, legal representatives or assigns, shall be forthwith entitled to the possession of the demised premises without any further proceeding at law or otherwise, to recover possession thereof. And the said party of the first part covenants and agrees with the said party of the second part, and his legal representatives, that the covenants herein contained being faithfully performed by the said party of the second part, he shall peaceably hold and enjoy the said demised premises, during the term aforesaid without hinderance or interruption by the said lessor or any other person.

In Witness Whereof, the said parties have executed this indenture in duplicate, signing their names and affixing their seals to both parts thereof the day and year in this behalf above written.

In presence of .....

JOHN DOE. [*Seal.*]
SAMUEL ROE. [*Seal.*]

GAME.

THERE is no right of property in wild animals. Any person may kill or eatch game, whether beast, bird or fish. But no man has any right under the law to go on the land of another to shoot, or for any other purpose, unless by permission of the owner of the land. In some localities it is usual to put up signs on the roadside, with the words "No shooting allowed on these premises." From this one receives the assuranee that he will be prosecuted if he shoots on the land, but may infer that he will be allowed to walk peacefully over the land. If he *has leave* to go on the land, then he may shoot and eateh wild animals and fish, and what he gets is his. So he ean be proseeuted for being upon the land without leave, not for shooting or eatching or taking game there.

A man may stand in a road adjoining a farm and shoot a bird, but should it fall within the boundaries of the farm, he eannot step over the line to get the bird without being a trespasser.

A hunter does not acquire legal ownership in wild animals until they are in his possession. A wounded animal belongs to its eaptor.

DOMESTIC ANIMALS.

The law distinguishes animals into such as are tame and such as are wild. The former are seldom or never found wandering at large, while the latter are usually found at liberty. Tame or domestic animals are property. A farmer has certain rights and liabilities on account of them. Those who kill or injure them are liable. If his neighbor's cattle, or other four footed animals, come upon his land, he may confine them in a pen, or turn them into the road. In the former case he must give notice to the owner of such animals; in the latter case, he is not required to give notice.

The owner of domestic animals is bound to keep them at home; otherwise, he may lose them or be obliged to answer for any injury or damage they do to the person or property of his neighbor.

Dogs are naturally mischievous, and the farmer is answerable for any injury they do to others. If a dog runs at anyone in the public road in a threatening manner, or runs at anyone on his own land, the animal may be killed on the spot. In some states the dogs are required to be licensed; if the law is not observed, they are outlawed, and may be killed by anybody who is upon his own or common grounds.

Hens cannot be penned up or impounded. They may be driven away, but must not be killed. A neighbor might shoot a hen for habitually getting her food from his garden instead of the grounds of her owner, where she ought to be; he might throw the carcase over the fence and into the lot of its owner. For this, it seems, he would be liable. But a jury, who fix the damages in cases of trespass, would probably not give much more than a cent's worth of damage to the owner, whose property had been actually kept at his neighbor's expense.

Where a farmer turns his animals loose in the public highway, and they should injure another in either person or property, who was lawfully using the highway, the owner would be held for the damages.

"A farmer's old black sow was wollowing in a gutter by the road side, and frightened a horse and threw a young lady out of the carriage; the farmer was held for damages." "A man permitted his horse to feed in the highway. Some children were there playing, and some of them began to switch him, whereupon he kicked one of them, from the injury of which the child died. The farmer was held for manslaughter." Severe as this law may seem, it might be more harsh if the owner was cognizant of the fact that his animal was vicious, as by reference to the old Mosaic laws, that, "If the ox were wont to push with his horn in time past, and it hath been testified to his owner, and he hath not kept him in, but that he hath killed a man or a woman; the ox shall be stoned, and his owner shall also be put to death" (Exodus 21–29).

A person who owns or keeps vicious animals on his own premises would be held for any damages caused to persons crossing, or going on his premises, notwithstanding that the person so injured was a trespasser on the farmer's land, unless the farmer has taken the precaution to post up notices warning passers by of the danger. A man was fined five hundred dollars for injury done a man from a vicious bull which he kept on his premises for the purpose of ridding himself of the annoyance of people coming on his premises to catch fish from a pond thereon. The owner's liability is even greater when people are lawfully entitled to cross or go on to his premises. Where an owner is aware that any brute or brutes that he may have are vicious, and he does not confine them, he is, in law, guilty of gross negligence. But it would be different if he was not aware of their vicious propensities. Without some carelessness can be proven on the part of an owner of a horse which ran away and injured some person, he would not be responsible for damage. But where a farmer leaves his team unhitched and it runs away and injures others or their property it might be otherwise.

The farmer has the right of ownership in animals the same as in any other species of personal property,

and can only be deprived of such ownership by and with his own consent. Where animals have strayed away, or been stolen for such a period of time as to give the farmer just cause to give them up as lost forever, and they should afterwards be discovered, the ownership would still reside in him. This would include such animals as were once public property, but which have been reclaimed by man, as where a flock of wild geese had been tamed, and afterwards strayed from their owner and were shot by a sportsman, who supposed that they were still the property of the public. He was held for the value of the geese.

Bees are held to be private property while in one's own hive, and often when on one's own premises; but where they take to the woods and lodge in a tree belonging to another man, a question might arise as to the right of ownership.

If a man owns a dog, and allows him to run at large, he will be held responsible for any damage the dog may do. This will be the case notwithstanding that the dog was never known to be otherwise than gentle and good natured. If, while the dog is at large, a child or children should tease him until he became irritated to such an extent as to bite one of them, the owner would have to pay the damages, which might be quite extensive. But it would be different if a man should molest a dog and get bitten, as the dog would then be the victor. A man must pay all damages his dog has caused, even though the dog be licensed, as the license is not intended to protect the owner from the depredations of his dog.

When a person is assaulted by a vicious dog, he may take the law in his own hands by shooting the dog to death; but he would not be permitted to place poison where the dog might get it; or where a dog is chasing any animals belonging to other than the owner of the dog, the dog may be shot without rendering the person so killing liable for damages; and so, if a dog should continually come upon your premises, and disturb your peace by howling or barking, you may shoot him without being liable for damages. Not so, if the dog was merely crossing your premises.

FRUIT, WHO OWNS IT?

It often becomes a question involving some nice points, and frequently troublesome and expensive litigation, between persons whose boundary lines are joined, and where either or both of the parties have fruit trees near such line, to know at all times which party is entitled to the fruit from such trees.

It is generally supposed that a person who owns land owns not only the surface, but also everything below and above it, and that his property extends downward to the center of the earth, and upward indefinitely, including all that is above as well as all that which is underneath the surface. But it seems that there is a limit to this general rule. An owner surely owns everything above his land which is affixed to it, but it would be different where trees stood on the land owned by another, notwithstanding that some of the roots from which the trees drew their sustenance extended to and even imbeded in the soil of an adjoining owner, as this would not give him any legal right to the fruit from such trees, though the branches on which the fruit grew should overhang his line. The owner of the land on which the tree stands would have the right to pick the fruit from the entire tree, and should the owner of the land over which the branches extended attempt by force to prevent the owner from gathering his fruit, he might be liable for an assault and battery. If the fruit should fall into an adjoining owner's field, the owner of the tree might have the right to cross over and pick it up without being a trespasser.

An owner of land would be responsible for any and all damages arising from having poisonous trees, the branches of which should overhang the land of another, so that his cattle feeds from them and are thereby killed.

Where a tree stands on a dividing line, the tree as well as the fruit would be owned in common between the parties owning the land, and neither of them would be allowed, without permission, to cut the tree down.

Every one owning land has a perfect right to plant fruit or shade trees to any number, and at any place on such grounds, as may suit his own convenience or taste; and if the trees should shade a neighbor's ground in such a way as to render it useless, or if they should cause his house to become damp and unhealthy, he would not be excusable for injuring the trees in any way. Any resort tending to the destruction of trees on another's premises would be a dangerous business.

MORTGAGE.

BY MORTGAGE, the conveyance of an estate, real or personal, is effected by a debtor in favor of his creditor, as a pledge or security for a debt. The debtor, or person who conveys property as security for debt, is called the Mortgagor. The creditor, or person to whom property is mortgaged, is called the Mortgagee. The conveyance is absolute in form, but subject to a proviso by which it is to become void, or by which the pledge is to be reconveyed upon repayment to the grantee of the principal sum secured, with interest, on a certain fixed day. Upon the non-performance of this condition, the mortgagee's estate becomes absolute at law, but remains redeemable in equity during a limited period.

In general, every description of property, and every kind of interest in it which is capable of absolute sale, may be the subject of a legal mortgage, or its equivalent in equity.

A deed, if really intended only as a security for money, will be treated as a mortgage, although, in form, it purports to be an absolute conveyance or assignment.

So long as the mortgagor remains in possession, the mortgagee's estate is not absolute. As to the rights of the mortgagee, he is entitled to enter into possession of the lands, and after notice to the tenants, to recover the rents and profits, unless there is some agreement to the contrary. He may grant leases, subject to the equity of redemption, and avoid by ejectment, without notice, any leases that may have been made by the mortgagor without his concurrence subsequently to his mortgage. He must, however, account for the rents which he receives, and pay an occupation rent for such parts as he may keep in his own possession.

A mortgagee is not allowed to obtain any advantage out of the security beyond his principal and interest. Though the mortgagee, after the mortgagor's default in payment of the principal sum and interest, has the absolute legal estate, he is still considered in equity to hold only as a security for his debt. In order to obtain absolute possession of the estate, the mortgagee has to file a bill of foreclosure against the mortgagor, calling upon the latter to redeem his estate forthwith, by payment of the principal money, interest, and costs, and if he fail to do so within the time specified by the court—usually three years—he is forever barred and foreclosed of his equity of redemption, and the mortgagee becomes owner in equity as he before was in law. In the event of a sale, the surplus, after deduction of the principal sum, interest, and expenses, must be accounted for and paid to the mortgagor, his heirs, executors, administrators, or assigns.

The above general remarks apply principally to mortgages of land.

FORM OF A MORTGAGE.

This Indenture, Made this.....day of .....in the year of our Lord one thousand eight hundred and.....between .....of the.....in the County of.....and State of..... party of the first part, and..... of the.....in the County of .....and State of.....party of the second part.

Whereas, The said party of the first part is justly indebted to the said party of the second part in the sum of.....dollars secured to be paid by.....certain.....

Now, Therefore, this Indenture Witnesseth, That the said party of the first part, for the better securing the payment of the money aforesaid, with interest thereon according to the tenor and effect of the said.. ....above mentioned, and also in consideration of the further sum of One Dollar to.....in hand paid by the said party of the second part, at the delivery of the Presents, the receipt whereof is hereby acknowledged, ha.. granted, bargained, sold, remised, released, conveyed, aliened and confirmed, and by these Presents do grant, bargain, sell, remise, release, convey, alien and confirm, unto the said party of the second part and to..... heirs and assigns forever, all the following described lot.., piece.., or parcel.., of land, situate in the County of.....and State of .....and known and described as follows, ***to wit:*** (*Here insert description of property.*)

To Have and to Hold the Same, Together with all and singular the tenements, hereditaments, privileges, and appurtenances, thereunto belonging, or in any wise appertaining; and also, all the estate, interest and claim whatsoever, in law as well as in equity, which the said party of the first part ha.. in and to the premises hereby conveyed, unto the said party of the second part, ...heirs and assigns, and to their only proper use, benefit, and behoof forever;

Provided always, and these Presents are upon this EXPRESS CONDITION, that if the said party of the first part,.....heirs, executors, or administrators, shall well and truly pay, or cause to be paid, to the said party of the second part.....heirs, executors, administrators, or assigns, the aforesaid sum of money, with interest thereon, at the time and in the manner specified in the above mentioned.....according to the true intent and meaning thereof, then and in that case these Presents, and everything herein expressed, shall be absolutely null and void.

But it is further Provided and Agreed, That if default be made in the payment of the said.....or of any part thereof, or the interest thereon, or any part thereof at the time and in the manner and at the place above limited and specified for the pay-

ment thereof, or in case of waste or non-payment of taxes or assessments, or neglect to procure or renew insurance, as hereinafter provided, or in case of the breach of any of the covenants or agreements herein contained, then and in such case, the whole of said principal and interest, secured by the said.....in this Mortgage mentioned, shall thereupon, at the option of the said party of the second part.....heirs, executors, administrators, attorneys, or assigns, become immediately due and payable; anything herein or in said.....contained to the contrary notwithstanding. And this Mortgage may be immediately foreclosed to pay the same by said party of the second part,..... heirs, executors, administrators, or assigns; or the said party of the second part, ... heirs, executors, administrators, attorneys, or assigns, after publishing a notice in any newspaper at that time published in the.....in the State of.....for .....weeks before the day of such sale, may sell the said premises, and all right and equity of redemption of the said party of the first part..... heirs, executors, administrators, or assigns therein, at public auction, at the.....in the.....in the State of .....or on said premises, or any part thereof, as may be specified in the notice of such sale, to the highest bidder for cash, at the time mentioned in such notice, or may postpone or adjourn said sale from time to time at discretion, with or without re-advertising, and may sell said premises enmasse, or in separate parcels.

And the said party of the first part hereby specially covenant and agree..to and with the said party of the second part to waive, and hereby waives..... right of equity of redemption, and further agree that.....will neither assert or claim any such right on a sale of the above described premises by virtue of this Mortgage. And upon the making of such sale or sales, the said party of the first part do.. hereby authorize, empower and direct the said party of the second part, his executors, administrators, attorneys or assigns, in his or their own name, to make, execute and deliver to the purchaser or purchasers thereof, a deed or deeds for the premises so sold, and covenant and agree that all the recitals of such deed or deeds setting forth the fact of due notice, advertisement, and sale and any and all such other facts and statements as may be proper to evidence the legality of such sale or sales or conveyance or conveyances, and that the same have been duly made in all respects so as to meet the requirements herein contained, or arising in law, and necessary to convey a good title, shall be taken and considered as prima facie evidence of all such facts and matters set forth in such recitals; and out of the proceeds of such sale, or money arising therefrom, the said party of the second part... ....executors, administrators, attorneys, or assigns first to pay all costs and expenses incurred in advertising, selling and conveying said premises, including the reasonable fees and commissions of said party of the second part, and all other expenses, including all moneys advanced for taxes, and other liens or assessments with interest thereon at.....per cent per annum, together with the sum of .....dollars for attorney's fees, then to pay the principal of said.....whether due and payable by the terms thereof or not, and interest thereon up to the time of such sale and to render the overplus, if any, to said party of the first part.....legal representatives or assigns, on reasonable request, and in case of the foreclosure of this Mortgage by proceedings in court, or in case of any suit or proceedings at law or in equity, wherein said party of the second part.....executors, administrators or assigns shall be a party, plaintiff or defendant by reason of.....being a party to this Mortgage, he or they shall be allowed and paid their reasonable costs, charges, attorney's and solicitor's fees, in such suit or proceeding by said party of the first part, and the same shall be a further charge and lien upon said premises under this Mortgage to be paid out of the proceeds of sale thereof, if not otherwise paid by said party of the first part.

And in Consideration of the money paid as aforesaid to the said party of the first part, and in order to create a first lien and incumbrance on said premises under this Mortgage, for the purposes aforesaid, and to carry out the foregoing specific application of the proceeds of any sale that may be made by virtue hereof, the said party of the first part do..hereby release and waive all right under, and benefit of, the exemption and homestead laws of the State of.....in and to the lands and premises aforesaid, and the proceeds of sale thereof, and agree to surrender up possession thereof to the purchaser or purchasers at such sale, peaceably on demand.

And the said.....for.....and.....heirs, executors, and administrators, covenant and agree to and with the said party of the second part.....executors, administrators and assigns, that at the time of the ensealing and delivery of these presents ..... well seized of said premises in fee simple, and ha..good right, full power and lawful authority to grant, bargain and sell the same in manner and form as aforesaid; that the same are free and clear of all leins and incumbrances, whatsoever; and that.....will forever warrant and defend the same against all lawful claims; that the said party of the first part will in due season pay all taxes and assessments on said premises, and exhibit once a year, on demand, receipts of the proper persons, to said party of the second part, or .....assigns, showing payment thereof, until the indebtedness aforesaid shall be fully paid; and will keep all buildings that may at any time be on said premises, during the continuance of said indebtedness, insured in such company or companies as the said party of the second part or.....assigns may from time to time direct, for such sum or sums as such company or companies will insure for, not to exceed the amount of said indebtedness, except at the option of said party of the first part, and will assign, with proper consent of the insurers, the policy or policies of insurance to said party of the second part or.....assigns, as further security for the indebtedness aforesaid.

And in case of the refusal or neglect of said party of the first part, or either of them, thus to insure, or assign the policies of insurance, or to pay taxes, said party of the second part, or his executors, administrators or assigns, or either of them, may procure such insurance, or pay such taxes, and all moneys thus paid, with interest thereon at.....per cent per annum, shall become so much additional indebtedness, secured by this Mortgage, and to be paid out of the proceeds of sale of the lands and premises aforesaid, if not otherwise paid by said party of the first part.

And it is Stipulated and Agreed, That in case of default in any of said payments of principal or interest, according to the tenor and effect of said.....aforesaid, or either of them, or any part thereof, or of a breach of any of the covenants or agreements herein by the party of the first part,.....executors, administrators or assigns, then, and in that case, the whole of said principal sum hereby secured, and the interest thereon to the time of sale, may at once, at the option of said party of the second part..... executors, administrators, attorneys, or assigns, become due and payable, and the said premises be sold in the manner and with the same effect as if the said indebtedness had matured.

In Witness Whereof, the said party of the first part..... hereunto set.....hand..and seal.. the day and year first above written.

..... [*Seal.*]

..... [*Seal.*]

..... [*Seal.*]

Signed, sealed, and delivered in presence of

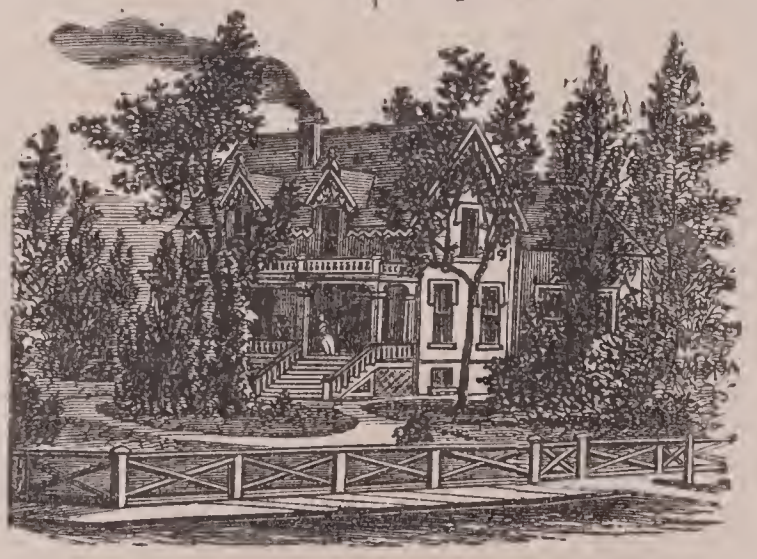
.....

.....

DEEDS.

A DEED is a formal document, on paper or parchment, duly signed, sealed and delivered. In this country, generally, lands are transferred only by a deed, which is signed, sealed, acknowledged, delivered and recorded. When made by one party only, a deed is called a deed poll; when several parties are concerned, an indenture. A deed poll is cut even, or polled at the edges. The form commences in the mode of a declaration, "Know all men by these presents, that," etc. The form appropriated to an indenture, or a deed among several parties, is: "This indenture, made, etc., between, etc., Witnesseth," etc.

A properly-arranged deed of conveyance usually consists of the following parts: First, the date and names of the parties; secondly, the recitals in which the intentions of the parties and former transactions with regard to the same are recounted as far as necessary. Then the operative part, consisting of the habendum, which defines the estate or interest to be granted; the tenendum, usually joined with the habendum, but it is unnecessary, since the tenure is never expressed, except upon a sub-grant or lease reserving rent; the reddendum, or the reservation of some new thing, such as rent to the grantor. Next come the conditions, if any, annexed to the grant, the covenants, and the conclusion, which mentions the execution, etc.



A deed must be signed and sealed by the grantor, and by the grantee also, if any agreement or covenant is entered into by him. The delivery and recording of a deed completes its efficacy, and thence it takes effect.

A deed is good although it mentions no date, or has a false or impossible date, provided the real date of its delivery can be proved. After execution, a deed may become void by erasure, interlineation or other alteration in any material part; but, generally, such alterations are presumed to have been made before execution.

FORM OF A WARRANTY DEED.

This Indenture, Made this.....day of ....., in the year of our Lord one thousand eight hundred and ....., between .....of the....., in the County of.....and State of..... party of the first part, and.....of the....., in the County of .....and State of....., party of the second part.

Witnesseth, That the said party of the first part, for and in consideration of the sum of.....dollars in hand paid by the said party of the second part, the receipt whereof is hereby acknowledged and the said party of the second part forever released and discharged therefrom, ha....granted, bargained, sold, remised, released, conveyed, aliened and confirmed, and by these presents do....grant, bargain, sell, remise, release, convey, alien and confirm unto the said party of the second part, and to.....heirs and assigns FOREVER, all the following described lot.., piece.., or parcel... of land situated in the County of.....and State of....., and known and described as follows, **to-wit:** .....

Together with all and singular, The hereditaments and appurtenances thereunto belonging or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof; and all the estate, right, title, interest, claim or demand whatsoever, of the said party of the first part, either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances: **To Have and to Hold** the said premises above bargained and described, with the appurtenances, unto the said party of the second part, ... heirs and assigns, FOREVER.

And the said....., party of the first part, for... .....heirs, executors and administrators, do.... covenant, grant, bargain and agree, to and with the said party of the second part, ... heirs and assigns, that at the time of the ensealing and delivery of these presents, ..., well seized of the premises above conveyed, as of a good, sure, perfect, absolute and indefeasible estate of inheritance in law, in fee simple, and ha.. good right, full power and lawful authority to grant, bargain, sell and convey the same in manner and form aforesaid, and that the same are free and clear from all former and other grants, bargains, sales, liens, taxes, assessments and incumbrances, of what kind or nature soever: and the above bargained premises, in the quiet and peaceable possession of the said party of the second part, ...heirs and assigns, against all and every other person or persons lawfully claiming or to claim the whole or any part thereof, the said party of the first part shall and will **Warrant and Forever Defend.**

And the said party of the first part hereby expressly waive... and release.. any and all right, benefit, privilege, advantage and exemption, under or by virtue of any and all Statutes of the State of..... providing for the exemption of homesteads from sale on execution or otherwise.

In Witness Whereof, the said party of the first part .....hereunto set.....hand..and seal..the day and year first above written.

Signed, sealed, and delivered in presence of..... } ..... [*Seal.*]
..... [*Seal.*]

FORM OF TRUSTEE'S DEED.

This Indenture, Made this.....day of.....in the year of our Lord one thousand eight hundred and .....between .....of the.....in the County of.....and State of ... party of the first part, and.....of the.....in the County of .....and State of..... party of the second part.

Witnesseth, That, whereas,.....of the.....in the County of.....and State of.....by a certain Trust Deed dated the .....day of.....A. D. 18....did bargain, sell, and convey unto.....as Trustee, his.....heirs and assigns, all the premises hereinafter described, to secure the payment of.....certain promissory note , in said Trust Deed particularly mentioned:

.....

And, whereas, it was expressly provided in said Trust Deed, that, in case default should be made in the payment of the said.... promissory note , or any part thereof, either of principal or interest, according to the tenor and effect thereof, or in case of the breach of any of the covenants or agreements in said Trust Deed mentioned, then, on the application of the legal holder of the said promissory note ,.....the said.....after publishing a notice in.....any newspaper printed in the.....before the day of such sale, might sell and dispose of the said premises, and all the right, title, benefit, and equity of redemption of the said..... heirs and assigns therein, at public auction, at the.....in said .....County of.....and State of.....to the highest bidder for cash, at the time mentioned in such notice; and also make, execute, and deliver to the purchaser or purchasers thereof, a good and sufficient deed or deeds for the premises so sold; which said Trust Deed is recorded in the Recorder's Office of the County of..... and State of.....in book.....of.....page.....

And, whereas, also, default having been made in the payment of.....said promissory note , due, as aforesaid..... and.....the legal holder thereof having applied to me, as such Trustee, to cause said premises herein described to be sold for the purposes mentioned in, and in accordance with the provisions of said Trust Deed, I, the undersigned party of the first part, on the .....day of.....A. D. 18 , caused a notice to be published in the.....a newspaper printed in the.....County of..... and State of.....that said premises hereinafter described would, on the.....day of.....A. D. 18 , at.....o'clock in the .....noon of said day, be sold at public auction, at the.....in said County of.....to the highest bidder for cash, by virtue of the power and authority in me vested by said Trust Deed; which said notice was printed.....for.....consecutively in said paper, commencing on the.....day of.....A. D. 18 , and ending on the .....day of .....A. D. 18 .

And, whereas, also, the said premises having been, by the said party of the first part, on the.....day of.....A. D. 18 , at.....o'clock in the.....noon of said day, in the manner prescribed in and by said Trust Deed, and at the place last aforesaid, in pursuance of said notice, offered for sale at public auction, to the highest bidder, for cash, and the said party of the second part having been the highest bidder therefor, and having bid for the tract.....hereinafter named, the sum of.....Dollars..... duly declared the purchaser thereof.

....

Now, therefore, this Indenture Witnesseth, that the said party of the first part, as Trustee, as aforesaid, for and in consideration of the sum so bid as aforesaid, to.....in hand paid by the said party of the second part, the receipt whereof is hereby acknowledged, has granted, bargained, sold, aliened, remised, released, and confirmed, and by these Presents does grant, bargain sell, alien, remise, release, and confirm, unto the said party of the second part, and to.....heirs and assigns FOREVER, all the following described lot , piece , or parcel of land, situate in the County of.....and State of.....known and described as follows, ***to wit:***.....

Together with All and Singular the tenements, hereditaments, and appurtenances thereunto belonging, as the same are described and conveyed in and by the said Trust Deed; and also, all the estate, right, title, interest, property, claim, and demand whatsoever, both in law and equity, of the said.....as well as of the said party of the first part, of, in, and to the above described premises with the appurtenances, as fully, to all intents and purposes, as the said party of the first part hath power and authority to grant, sell, and convey the same by virtue of the said Trust Deed, TO HAVE AND TO HOLD the said above granted premises, with their appurtenances, and every part thereof, unto the said party of the second part.....heirs and assigns, FOREVER.

In Witness Whereof, the said party of the first part..... hereunto set.....hand and seal the day and year first above written.

Signed, sealed, and delivered, in the presence of
.....
.....

.....[*Seal.*]

.....[*Seal.*]

DEED OF GIFT, BY INDENTURE WITHOUT ANY WARRANTY WHATEVER.

This Indenture, made the.....day of.....in the year one thousand eight hundred and.....between (*name, residence and occupation of the grantor*) of the first part, and (*name, residence and occupation of grantee*) of the second part;

Witnesseth, that the said (*grantor*) as well for and in consideration of the love and affection which he has and bears towards the said (*grantee*) as for the sum of one dollar, lawful money of the United States, to him in hand paid by the said party of the second part, at or before the ensealing and delivery of these presents, the receipt whereof is hereby acknowledged, has given, granted, aliened, enfeoffed, released, conveyed and confirmed, and by these presents does give, grant, alien, enfeoff, release, convey and confirm, unto the said party of the second part and his heirs and assigns forever, all (*here describe carefully the land or premises granted, by metes and bounds, and dimensions, contents or quantity, or boundary marks or monuments, and refer by volume and page to the deed of the land to the grantor, under which he holds it*).

Together with All and Singular the tenements, hereditaments and appurtenances thereto belonging or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof. And, also, all the estate, right, title, interest, property, possession, claim and demand whatsoever, of the said party of the first part, in and to the same, and every part and parcel thereof, with their and every of their appurtenances, TO HAVE AND TO HOLD the said hereby granted and described premises and every part and parcel thereof, with the appurtenances, unto the said party of the second part, and his heirs and assigns, to his and their only proper use, benefit and behoof FOREVER.

In Witness Whereof, the said party of the first part has hereunto set his hand and seal the day and year first above written.

(SIGNATURE.) [*Seal.*]

Sealed and delivered in presence of:

QUITCLAIM DEED WITHOUT ANY WARRANTY.

This Indenture, made the.....day of..... in the year one thousand eight hundred and.....between (*name, residence and occupation of grantor*) of the first part, and (*name, residence and occupation of the grantee*) party of the second part;

Witnesseth, That the said party of the first part, for and in consideration of the sum of.....lawful money of the United States of America, to him in hand paid, by the said party of the second part, at or before the ensealing and delivery of these presents, the receipt whereof is hereby acknowledged, has remised, released and quitclaimed, and by these presents does remise, release and quitclaim, unto the said party of the second part, and to his

heirs and assigns forever (*here carefully describe premises granted*).

Together with all and singular, The tenements, hereditaments and appurtenanees thereunto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof. And also all the estate, right, title, interest, property, possession, claim and demand whatsoever, as well in law as in equity, of the said party of the first part, of, in, or to the above deseribed premises, and every part and parcel thereof, with the appurtenanees: ***To Have and to Hold*** all and singular the above mentioned and deseribed premises together with the appurtenanees, unto the said party of the seeond part, and his heirs and assigns FOREVER.

In Witness Whereof, the said party of the first part has hereunto set his hand and seal the day and year first above written.

Sealed and delivered in presence of: (SIGNATURE.) [*Seal.*]

STATE OF..... } ss.
County of ..... }

On This.....day of.....in the year one thousand eight hundred and..... before me personally eame (*name of grantor*) who is known by me to be the individual deseribed, and who executed the foregoing instrument and aeknowledged that he exeeuted the same. (SIGNATURE.)

BOND FOR A DEED.

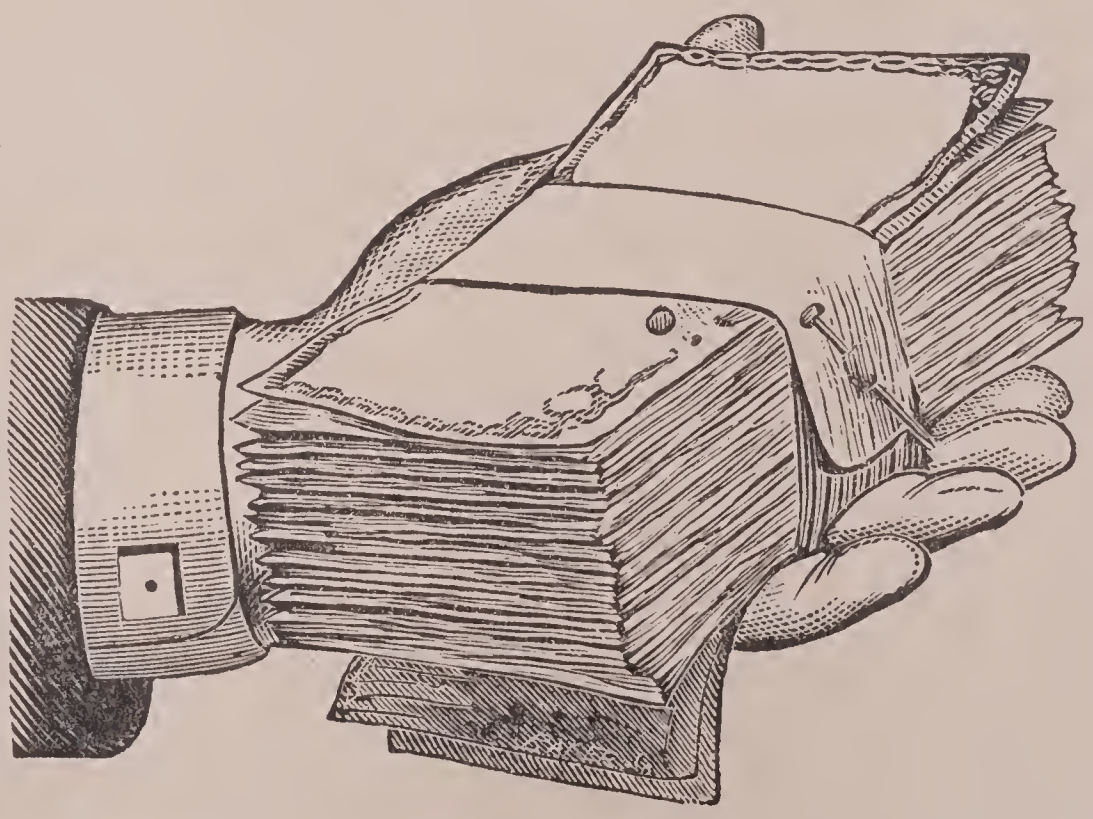
Know All Men by these Presents, That I (*name of obligor*) of the County of ... - and State of.....am held and firmly bound to (*name of obligee*) of the County of.....and State of .....in the sum of .....dollars, to be paid to (*name obligee*) or his executors, administrators, or assigns, to the payment whereof I bind myself, my heirs, exeeutors and administrators, firmly by these presents, sealed with my seal and dated the day of .....A. D. 18...

The condition of this obligation is that if I, the said (*name of obligor*), upon payment of.....dollars and interest thereon, as agreed and promised by said (*name of obligee*) agreeably to his promissory note, dated.....18.., and made payable as follows, ***to wit:*** (*describe note*). Shall eonvey to said (*name obligee*) or his heirs, exeeutors, or assigns forever, the following deseribed real estate, situate, lying and being in the eounty of.....and State of.....***to wit:*** (*here give careful description of land*) deed or deeds in eommon form duly exeeuted and acknowledged, and in the mean time shall permit said (*name of obligee*) to oeeupy and improve said premises for his own use, then this obligation shall be void, otherwise it shall remain in full foree.

(SIGNATURE.) [*Seal.*]

Signed, sealed and delivered in presence of:

WILLS.

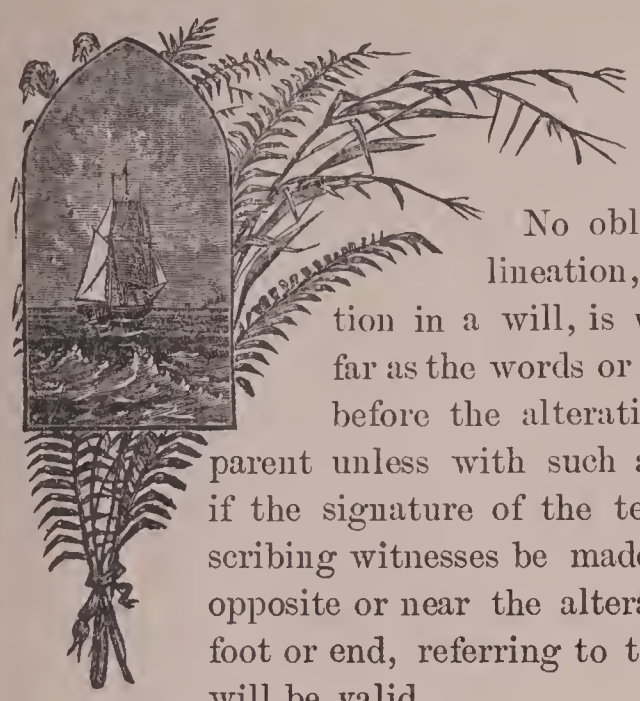


WILL, or testament, has been defined to be the declaration, in proper form, of what a man wills to be performed after his death.

All wills, whether of real or personal estate, must be in writing, and signed at the foot or end thereof by the testator, or by some person in his presence, and by his direction, in the presence of two witnesses at least, present at the time, who must subscribe and attest the will in his presence. "The signature must be so placed at, after, following, under, or beside, or opposite the end of the will, that it shall be apparent on the face of the will that the testator intended to give effect by such his signature to the writing signed as his will."

In general, all persons who have sufficient understanding are capable of disposing by will of both real and personal estate. A married woman can make a will of the property settled to her separate use. In most of the states minors may bequeath personal property; in most cases the age for this purpose is eighteen for males and sixteen for females. Otherwise, no will made by any person under the age of twenty-one is valid.

A will is a revocable instrument, and is revoked by marriage either in the case of a man or woman, but it is not revoked by any other change of circumstances. It may, however, be revoked by another will subsequently executed. A will might be revoked by tearing off the name, but the question, "who tore it off," would come up. If a testator wishes to revoke an existing will, it is better to destroy it; or, if the old one cannot be got at by the testator, he should make a new one. In the beginning



of this latter instrument, he should say that it is his last will.

No obliteration, interlineation, or other alteration in a will, is valid, except so far as the words or effect of the will before the alteration shall be apparent unless with such alteration. But if the signature of the testator and subscribing witnesses be made in the margin opposite or near the alteration, or at the foot or end, referring to the alteration, it will be valid.

A will takes effect as if executed immediately before the testator's death, unless a contrary intention be shown by the will; and lapsed and void devises fall into the residue unless the will shows a contrary intention.

When a person has resolved upon making a will, he should select from among his friends, persons of trust to become his executors, and should obtain their consent to act. And it is advisable that a duplicate copy of the will should be entrusted to the executor or executors. Or he should otherwise deposit a copy of his will, or the original will, in the office provided by the probate court for the safe custody of wills.

Codicil is a supplement to a will, where anything is omitted which the testator would add, or which he would explain, alter, or retract; and it is the same with a testament, and taken as part thereof; and it must be executed in the same manner as a will, and be attested by two witnesses at least, who must be present when the testator signs or acknowledges it; and they must sign their names, as witnesses thereto, in his presence and in the presence of each other.

Any number of codicils may be made to a will. A will is changed somewhat by a codicil, but not revoked by one. Alterations in wills or codicils should be very clearly stated, and it would be well to use the following words: "I hereby expressly confirm my former will, dated ——, excepting so far as the disposition of my property is changed by this codicil."

A will made by word of mouth is called nuncupative; that written entirely by the hand of the testator is olographic. Another kind of will is the mystic, or sealed testaments.

The personal property of any person deceased, left undisposed of by deed or will, is divisible among his widow—should he leave one—and his next of kin, in the following order:

(1) Children,
Grandchildren,
Great-grandchildren.

The next inheritors, in the absence of these, are

(2) Father; if none,
Mother, and
Brothers and sisters, and their children, but not their grandchildren.

(3) Grandfathers and grandmothers; if none,

(4) Uncles and aunts; if none,

(5) Cousins, and great-nephews and nieces.

If the deceased leave a widow, but no child or children, one-half of his personal estate will fall to his widow, and the other half will be divisible among the next of kin. The father of an intestate without children is entitled to one-half of his estate, if he leave a widow, and to the whole if he leave no widow. When the nearest of kin are the mother and the brothers and sisters, the personal estate is divisible in equal portions, one of which will belong to the mother, and one to each of the brothers and sisters; and if there be children of a deceased brother or sister, an equal portion is divisible among each family of children.

The more complicated forms of wills require the superintendence of a professional adviser.

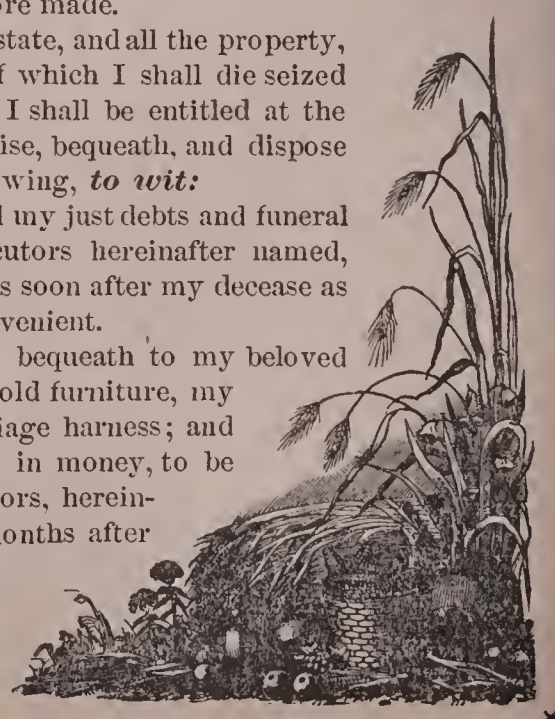
In the provinces of the Dominion of Canada, the laws in relation to wills are substantially the same as those of the United States.

GENERAL FORM OF A WILL DISPOSING OF BOTH REAL AND PERSONAL ESTATE.

Know all Men by these Presents, That I (*name of testator*) of (*here name town or city, County and State, business calling or profession*), being (*in good or ill health, as the case may be*) and of sound and disposing mind and memory, do make and publish this, my last will and testament, hereby revoking all former wills by me at any time heretofore made.

And as to my worldly estate, and all the property, real, personal, or mixed, of which I shall die seized and possessed, or to which I shall be entitled at the time of my decease, I devise, bequeath, and dispose thereof in the manner following, ***to wit:***

First, My will is, that all my just debts and funeral expenses shall, by my executors hereinafter named, be paid out of my estate, as soon after my decease as shall by them be found convenient.



Item. I give, devise and bequeath to my beloved wife (*name*) all my household furniture, my horses, carriage, and carriage harness; and also ten thousand dollars in money, to be paid to her by my executors, hereinafter named, within six months after my decease; to have and to hold the same to her and to her executors, administrators, and assigns

forever. I also give to her the use, improvement and income of my dwelling-house, land and its appurtenances, situated (*here describe property*) and my land situated in (*describe land*) to have and to hold the same to her for and during her natural life.

I give and bequeath to my honored mother (*name*).....dollars, in money, to be paid to her by my executors hereinafter appointed, within six months after my decease; to be for the sole use of herself, her executors, administrators and assigns.

I give and bequeath to my daughter (*name*) (*here describe and itemize the property and items to be given*); to have and to hold the same together with all the profits and income thereof, to her, the said (*name*), her heirs, executors, administrators, and assigns, to her and their use and benefit forever.

I give, devise, and bequeath to my son (*name*) the reversion or remainder of my dwelling or mansion house, and its appurtenances, situate in (*describe property*) and all profits, income, and advantage that may result therefrom, from and after the decease of my beloved wife, (*name*); to have and to hold the same to him, the said (*name*), his heirs and assigns, from and after the decease of my said wife, to his and their use and behoof forever.

I give and bequeath to my second son (*name*), the reversion or remainder of my land situated in (*describe it*) and its appurtenances, and all the profits, income and advantage that may result therefrom, from and after the decease of my beloved wife (*name*), to have and to hold the same to the said (*son's name*) his heirs and assigns from and after the decease of my said wife, to his and their use and behoof forever.

All the rest and residue of my estate, real, personal, and mixed, of which I shall die seized and possessed, or to which I shall be entitled at my decease, I give, devise, and bequeath to be equally divided between and among my said sons (*names*).

And, lastly, I do nominate and appoint my said sons (*names*), to be the executors of this my last will and testament.

In Testimony Whereof, I, the said (*name of testator*), have to this, my last will and testament, contained (*number of sheets of paper*), and to every sheet thereof, subscribed my name, and to this, the last sheet thereof, I have subscribed my name and affixed my seal this.....day of.....in year of our Lord one thousand eight hundred and.....

(SIGNATURE.) [*Seal.*]

Signed, sealed, published, and declared by the said (*name testator*), as and for his last will and testament, in the presence of us, who, at his request and in his presence, and in the presence of each other, have subscribed our names as witnesses thereto.

(SIGNATURE.)
(SIGNATURE.)
(SIGNATURE.)

EXECUTORS AND ADMINISTRATORS.

THE WASHINGTON HOMESTEAD, MOUNT VERNON.

AN EXECUTOR is a person intrusted by a testator to carry out the directions and requests in his will, and to dispose of his property as directed therein, after his decease. When no executor is named by will, or when those named refuse to act, then the probate court nominates certain persons to act as administrators to the deceased.

Before probate of the will, an executor may effectually do most of the acts that he could enforce afterward; but an expected administrator can properly do

no act whatever before obtaining letters of administration. An administrator, after receiving letters of administration, is in most respects in the same position as an executor, and the cases relating to the one apply, in general, to those of the other.

The right to nomination as administrators or executors, generally speaking, is in the order of relationship to the deceased. In this country, the widow or next of kin, have the first right to be appointed, but the courts have some discretion in the matter. An administrator is required generally to enter into bond with sureties for the faithful execution of his trust.

An executor may refuse to act; but having once acted, he cannot divest himself of the office or its responsibilities. If a person take upon himself to act as executor without any just authority, as by intermeddling with the goods of the deceased, he is called an executor *de con tort i. e.*, to his own hurt, and is liable to all the trouble of his office, without any of the profits or advantages; but merely doing acts of necessity or humanity, as locking up the goods, or burying the deceased will not be so construed.

An executor is not entitled to any remuneration for his own personal trouble or loss of time, unless it be expressed in the will.

The duties of an executor are to bury the deceased in a suitable manner, to prove the will, and make up an inventory of the personal estate; to collect the goods and chattels of the deceased, and to pay his creditors in the order of legal priority. The legacies are then to be paid as far as the assets extend, observing the distinction between a specific and a general legacy, the residue, if any, going to the next of kin.

The office of an executor is one of great trust and responsibility, as he not only represents the deceased, but is also a trustee for behoof of the creditors, legatees, and next of kin, of the deceased. He is liable for any loss occurring to the estate through negligence; for paying sums not due, unless upon decrees; for paying simple-contract creditors before special creditors, or legatees before all the debts are discharged, if there should be any deficiency in the estate.

If an executor intromit with the funds or movables, so as to lead to a suspicion of fraud, or so as to leave no means of ascertaining its extent, he is liable for all the debts of the deceased; otherwise, an executor is liable for the debts of the deceased only to the amount of the inventory.

The office of an administrator is to administer or distribute the goods of a person who has died without making a will; or, having made a will, without appointing an executor. In such cases, letters of administration are taken out of the principal or a district registry of the court of probate. Administration is used for managing the affairs of minors, lunatics, etc.

GUARDIAN.

A GUARDIAN is one who has the care of the person and property of a minor, who is called his ward. The guardian is considered as a trustee for his ward, and is accountable for the due management of the infant's property, and is answerable not only for fraud, but for negligence or omission.

A guardian may manage and dispose of the personal property of his ward at his own discretion, but it is best to get the advice or sanction of the court before making any important contract. He cannot sell the real estate without leave of the proper court, but may lease it if authorized to do so by will or court. He should not convert the personal property into real on his own responsibility.

A married woman may become a guardian with the consent of her husband. A single woman who is a guardian usually loses her power to act as such by marriage; but she may be re-appointed.

A guardian is not entitled to the service of his ward, or is he held for the support of his ward out of his own property. The guardian is required to educate and see that his ward has employment suitable to his circumstances and rank in life, and where the guardian may think it to the best interests of the ward, he can apprentice him to some trade or calling from which he may be able to earn a livelihood. A guardian, like the father of a child, would have the legal right to exercise reasonable coercive measures, when necessary, to

bring his ward under proper discipline. A guardian would be expected to furnish his ward with the necessaries of life, which would include all of those things ordinarily used by those similarly situated in life, but would not be liable if others should furnish like things which he had provided. But a guardian must not furnish his ward with things which would not be considered necessaries, lest the court might decide that he could have the privilege of paying the bill from his own exchequer.

PETITION FOR APPOINTMENT OF A GUARDIAN BY A MINOR OVER FOURTEEN YEARS.

To the Honorable, the Judge of the Probate Court for the County of.....:

The Petition of (*name of minor making application*) respectfully represents: That the petitioner is a minor child above the age of fourteen years, of (*name of father*), late of the County of ....., that he has no person legally authorized to take care of his person and estate, and prays the court that he may be permitted to make choice of a suitable person for that purpose.

(SIGNATURE.)

BOND BY GUARDIAN.

Know all Men by these Presents, That we, (*names of bondsmen*), both of (*town or city*), County of.....and State of ....., are held and firmly bound unto the Commonwealth of (*State*) (*or the proper obligee according to statute*), in the sum of six thousand dollars, lawful money, to be paid to the said Commonwealth, her certain attorney or assigns; to which payment, well and truly to be made, we do bind ourselves, our heirs, executors and administrators, jointly and severally, firmly by these presents; sealed with our seals, and dated this....of ....A. D. 18..

The condition of this obligation is such, that if the above bounden (*name of guardian*), guardian of (*name of ward*), a minor child of (*here give name of the father of the ward*), late of said (*name of town*), deceased, shall at least once in every three (*or, as the requirement is*) years and at any other time when required by the Probate Court (*or the other proper court*), of the County of....., render a just and true account of the management of the property and estate of the said minor under his care, and shall also deliver up the said property agreeable to the order and decree of the said court, or the direction of law, and shall in all respects faithfully perform the duties of guardian of the said (*name of ward*), then the above obligation shall be void; otherwise it shall remain in full force and virtue.

Signed, sealed and delivered in presence of
(SIGNATURE.)
(SIGNATURE.)

(SIGNATURE.) [*Seal.*]

(SIGNATURE.) [*Seal.*]

LIENS.

THE right of a creditor to retain the property of his debtor until his debt has been paid, is called a lien.

Liens are either general or specific. A general lien is a right to retain certain goods until all the claims of the holder against the debtor are satisfied. This sort of lien is not favored by the law.

A specific lien is the right to retain certain goods for claims arising from these goods. Thus, in the sale of any article, the vendor has a right to retain it until the price agreed be paid. As a general rule, a workman may retain any article which he has improved or repaired for the price of his labor; as a tailor who has received cloth to make into a coat may retain the coat until he is paid for the labor of making it.

Liens are implied by law, or authorized by custom; or they may be created by express contract. The custom, however, to be legal, must be reasonable; but this does not apply to special contract, which is good, though it may also be foolish or hard.

Lien can exist only where the possession of the goods has been legally obtained, and ceases to exist the moment they are parted with.

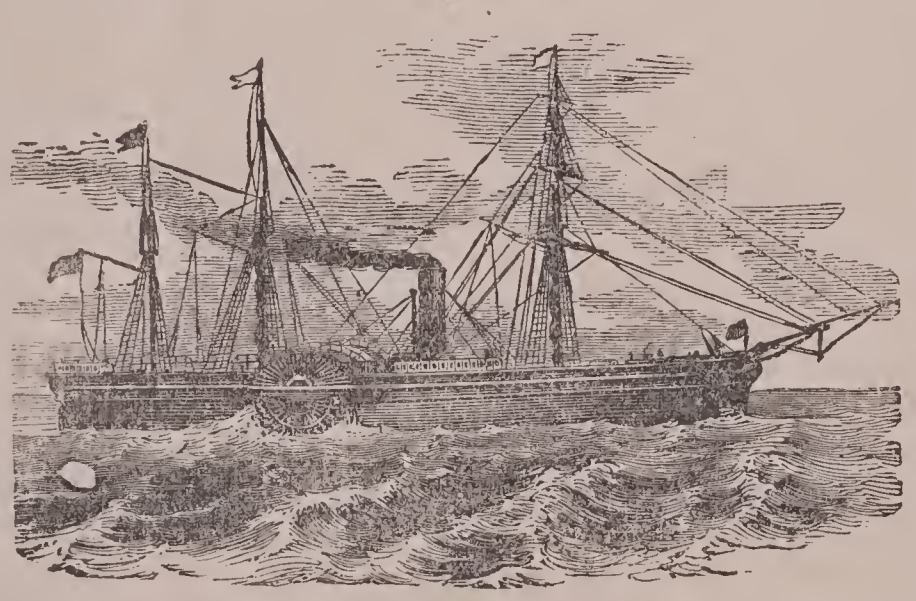
In some states a mechanic employed upon a house, and, in some upon any property or work, has a lien upon the same for a certain time, and he may recover the amount of his wages, and the price of materials which he has supplied. He may sue for his wages, and lay an embargo upon the property; or, according to the laws of certain other states, he may file a petition in the clerk's office or proper court; and, in any case may have the property sold to satisfy his claim, if the owner fails to meet it.

Maritime lien applies to ships, freight, or cargo, and differs from the other in not depending upon possession, and requiring a legal process for its enforcement. It may arise by law or by special contract. Seamen have a lien on the vessel for their wages. Bottomry is also a lien established by special contract, on a vessel for repairs or necessary supplies to her to enable her to complete her voyage.

LAW OF SHIPPING.

One of the principal subjects embraced in the system of commerce is that of the law of shipping. The evidence of the American character of a vessel is secured by registration in the custom-house. Vessels may or may not be registered. It is important that they should be registered, in order to have certain privileges and protection under the government.

A vessel of twenty tons burden, if for service in the coasting trade or fisheries, must be enrolled and licensed accordingly. If less than twenty tons burden, she need only be licensed, and if licensed for the fisheries, she may be permitted by the collector to visit and return from foreign ports. She must also be registered if she is to engage in the coasting trade or fishery, and if licensed and enrolled, she may become a registered ship, and have the privileges of such vessels.



A ship is personal property, but its ownership and transfer are regulated somewhat as real property. It may be transferred or sold by some instrument in writing. It may be owned by two or more persons, who may build it together, or join in purchasing it; or each may purchase his share, and have equal ownership. A part-owner may sell his share. In case of death, his share goes to his representatives.

Bottomry is in the nature of a mortgage of a ship, and is said by Blackstone to have originally arisen from permitting the master of a ship, in a foreign country, to hypothecate the ship in order to raise the money to refit. It arises when the owner takes up money to enable him to carry on his voyage, and pledges the keel or bottom of the ship as a security for the repayment; in which case it is understood that if the ship be lost, the lender loses the whole of his money; but if it returns in safety, then he shall receive back his principal, and also the premium or interest agreed upon, however it may exceed the legal rate of interest, it being considered in the nature of an insurance, and not usury. And this is allowed to be a valid contract in all trading nations. In this case, the ship and tackle, if brought home, are answerable (as well as the person of the borrower) for the money lent. But if the loan is not upon the vessel, but upon the goods and merchandise, which must necessarily be sold or exchanged in the course of the voyage, then only the borrower, personally, is bound to answer the contract, who, therefore, in this case, is said to take up money at respondentia (*i. e.*, a loan upon goods laden on board a ship; respondentia differing from bottomry, which is a loan on the ship itself).

These terms are also applied to contracts for the repayment of money borrowed, not on the ship and goods only, but on the mere hazard of the voyage itself; when a man lends a merchant $5,000, to be employed in a beneficial trade, with condition to be repaid with extraordinary interest, in case such a voyage be safely performed; which kind of agreement is sometimes called foenus nauticum, and sometimes usura maritima. But as this gave an opening for usurious and gaming contracts, especially upon long voyages, it was enacted by the statute 19 George II, C. 37, that all moneys lent on bottomry or respondentia, on vessels bound to or from the East Indies, shall be expressly lent only upon the ship, or upon the merchandise; that the lender shall have the benefit of salvage; and that if the borrower have not an interest in the ship, or in the effects on board, equal to the value of the sum borrowed, he shall be responsible to the lender for so much of the principal as hath not been laid out, with legal interest and all other charges, though the ship and merchandise be totally lost.

Charter-party, is a mercantile instrument in writing, with or without seal, by which a party desiring to

export goods from this country, or to import them from abroad, engages with some shipowner to take an entire vessel for the purpose, at a freight or reward thereby agreed for. Upon the execution of such an instrument the ship is said to be chartered or freighted, and the party by whom she is engaged is called the charterer or freighter. But, where, instead of taking the entire vessel, the owner of goods merely bargains for their conveyance on board of her for freight (other goods being at the same time conveyed for other proprietors), she is described, not as a chartered, but a general ship; and in this case no charter-party is usually executed, but a bill of lading only. It may be here stated that the word freight is sometimes synonymously used with that of cargo.

Manifest, is a paper containing the particulars of a ship and cargo, including the name and tonnage of the vessel, the name of the place to which it belongs and name of master; the names of the places where the goods on board have been laden and for which they are destined; a particular account of the packages on board, with thair marks, contents, shippers, consignees, etc., as far as may be known to the master. The manifest must be made out, dated, and signed by the master of the vessel at the place or places where the goods, or any part of them, are taken on board.

Salvage is an allowance made to persons other than the crew, by whom ships or goods have been saved from the sea, fire, pirates, or enemies. The officers and crew of a ship cannot claim salvage in respect of services rendered to it, unless, indeed, their duty to its owners had ceased by the master's bona fide abandonment of it at sea, without hope of recovery. No fixed positive rule or rate is laid down fixing the amount of salvage, but the general principle is, that a reasonable compensation be made.

The ingredients that are to be taken into account in determining the amount of salvage are (1) enterprise in the salvors in going out in tempestuous weather to assist a vessel in distress, risking their own lives to save their fellow-creatures, and to rescue the property of their fellow-subjects; (2) the degree of danger and distress from which the property is rescued, and whether it was in imminent peril and almost certainly lost, if not at the time rescued and preserved; (3) the degree of labor and skill which the salvors incur and display, and the time occupied; (4) the value. Where all these circumstances concur, a large and liberal reward ought to be given; but where none, or scarcely any, take place, the compensation can hardly be denominated a salvage compensation; it is little more than a remuneration for labor.

The person intrusted with the care and navigation of a ship is called the master. He is the confidential servant of the owners, who are bound to the performance of every lawful contract entered into by him relative to the usual employment of the vessel. The master has power to pledge both ship and cargo for repairs executed in foreign parts, but not for repairs executed at home.

With respect to collision, the rule is, that the party in fault suffers his own loss and compensates the other party who sustains loss through him. In case neither party is in fault, the loss rests where it falls, and likewise if both parties are in fault, though it is equally divided in admiralty.

Every seaman on board a vessel bound from a port in this country to any other port, must sign the shipping articles which every master of a vessel is required to have. These articles must set forth the voyage, and the terms on which each seaman goes on the vessel. The courts will protect seamen from oppressive articles.

The pilot is the steersman or person on board a ship who has charge of the helm and the ship's course. Pilots require to be found properly qualified and appointed. After a pilot is taken on board, if the master is by law obliged to do so, the master has no longer any command of the vessel till she is safe in harbor, and the owners are not responsible for any loss or damage that may arise from her mismanagement, unless it appear to have arisen from the neglect or misconduct of the master or crew in obeying the orders of the pilot. There are, however, cases in which it is lawful, and even necessary, for the master to interfere with or supercede a pilot; in which case, of course, the responsibility of the pilot ceases. But if it be optional for the master to take on board a pilot and he do so, the pilot is regarded as the servant of the owners, who are responsible for his conduct. Pilots are themselves answerable for any damage resulting from their own negligence or incompetency.

Average implies whatever loss or damage is incurred by any portion of a ship or cargo for the preservation of the rest. When such damage occurs, the several persons interested in the vessel, freight, and cargo, each contribute their proportion to indemnify the owner of the part in question, against the damages or expense which has been incurred for the general benefit. This allowance is for loss or damage that happens accidentally. General average also implies jeopardy of all.

FIRE INSURANCE.

FIRE INSURANCES are almost invariably effected by joint-stock companies, of which there are, with few exceptions, one or more in all the considerable towns throughout the country. Some of these insure entirely at their own risk, and for their own profit; in others, which are called mutual insurance companies, every person insured becomes a member or proprietor, and participates in the profits or loss of the concern.

In fire insurance, the insurers, in consideration of a certain premium received by them, either in a gross sum or in annual payments, contract to indemnify the insurer against all loss or damage he may sustain in his houses, or other buildings, stock, goods, or merchandise, by fire, during a specified period. Usually the period is for one year, and renewed annually by payment of another premium.

As in marine insurance, a misrepresentation, whereby the property insured may be charged at a lower rate of premium than it otherwise would be, invalidates the policy. The party effecting the insurance must also have a bona fide interest in the property insured.

Fire insurances are not, in this country, subject to the law of average, as in marine insurances; and the amount insured is payable to its full extent, provided the loss or damage is equal to the sum insured. The conditions on which an insurance is granted are in all cases printed upon the policy, and form a part of the contract.

A policy of insurance is not in its nature assignable, as it is only the interest of the insured that is designed to be covered by the policy, nor can it be transferred without the express consent of the office.

Risks are of various kinds, and are commonly divided into common, hazardous, extra-hazardous, and special.

Double insurance cannot be permitted, because it would tempt to fraud.

Each company has its own form of policy, which it furnishes to the applicant.

Any description of property which may be injured by fire may be insured. Where more than one person has a legal or equitable interest in property, each person so interested may insure his interest to its full value; as a mortgagor and a mortgagee have different interests in the same property, each may insure; the mortgagee insures his debt, and when this debt has been paid the policy ceases to be in force, but should there be a loss for which the insurers are liable, and before the mortgage has been canceled, the insurers would be held to pay the amount to the one holding the mortgage, if the amount should not exceed the sum insured, after which the insurers would be entitled to an assignment of the debt from the mortgagee, and could, by a suit at law, collect the amount of the insurance from the mortgagor, which operated merely as a transfer of the indebtedness from the mortgagee to the insurance company. If the mortgagor should have his interest in the property insured, he would be entitled to the

RUINS OF THE CHICAGO FIRE.

amount of the insurance, and the mortgagee would be compelled to look to him for a liquidation of the mortgage. An agent who may have the custody of a principal's goods, may have them insured, but as the principal, also, has the right to have the same goods insured, there must be care taken to avoid confounding these several interests, that all of the several sums of the insurance added together shall not more than equal the value of the property insured.

Where the insured desires to make any repairs or changes in the premises insured, he should so inform the insurers, and when practicable procure their written assent thereto. The alterations, or repairs would not, in themselves, render a policy void, unless such alterations have substantially enhanced the risk, but, it seems that the insurer would not be held, in the absence of their assent, to a new risk arising from alterations or repairs, but should a loss occur, while the premises were undergoing repairs or alterations, from causes independent of such changes, the insurers would be held. It is well to have a clause inserted in the policy providing for necessary and ordinary repairs.

FORM OF IMMEDIATE NOTICE OF LOSS.

Take Notice, That on the second day of January inst., a fire broke out in building No. 126 on Walnut street, in the City of Cincinnati, State of Ohio, whereon I am insured by you, by your policy, No. 28,964, for the sum of eight thousand dollars.

The fire was caused and caught from the burning of building No. 125, which joined on to mine.

The house was wholly destroyed by fire, and I shall claim a payment from you under your policy.

Written and sent this third day of January in the year 18 .

JOHN DOE. [*Seal.*]

Witness to the signature and sending.

SAMUEL ROE.

Some insurance companies insert a clause in their policies requiring the insured to make a sworn statement, to be accompanied by a certificate from a notary public or a magistrate, setting forth all the facts and circumstances known by the insured in relation to the causes of the fire as well as the loss.

FORM OF NOTICE WITH CERTIFICATE.

To the..... Insurance Company:

Whereas, The said .....Insurance Company, by their policy, numbered and dated on the.... .. day of.....in the year..... caused me to be insured in the sum of.....dollars against loss or damage by fire to the following described building: that is to say (*Here describe and designate the building sufficiently to show clearly where and what it was, taking the description of the policy, but not copying it at length.*)

Now, I the said (*Name of the assured*) having been solemnly sworn, do depose and say:

1. That on the.....day of.....now last past, between the hours of....and....a fire broke out in said building, whereby the same was greatly damaged (*or destroyed*), and the said fire was, according to my best knowledge and belief, caused by (*Here set forth the causes as far as they are known, or supposed on reasonable grounds*) and I aver that the said fire was not caused by me, or by my design and concurrence, or with any previous knowledge on my part, or in any manner attributable to me or to my agency, direct or indirect.

2. That I was interested in the said property in the following manner: that is to say (*Here say whether the insured owned the property himself, or was a tenant of it, or a landlord, or mortgagor or mortgagee, or trustee, or how otherwise he was interested.*)

3. That there was no other insurance against fire of the said property (or, if there was any other, state what it was).

4. That the occupants of the building at the time of the fire were, so far as is known to me, the following persons: (*Set forth the names of the occupants, the parts of the building occupied by each one, and the purpose for which it was occupied*).

5. That the actual value of the building in dollars at the time of the fire, was, according to my best belief and judgment ..... dollars. (*If the property was personal, as goods, furniture, or the like, say, as may appear by the schedule annexed*).

6. That the whole of said value was lost by the fire; and being more than the sum insured thereon, I now claim of said insurance company said sum of.....dollars (*or if the building was injured and not destroyed, then say that so much of the value—stating the amount—of said building was lost by fire, inasmuch as the building, if repaired, cannot be restored to as good a condition as before, for a less amount than that sum*).

Witness my hand at.....this.....day of.....in the year..... (SIGNATURE.)

CERTIFICATE TO BE APPENDED TO THE FOREGOING.

STATE OF..... } ss.
County of ..... }

I ....., a justice of the peace in and for said county (or what else may be his office) dwelling near to the property above mentioned, in the town (or city) of.....have investigated the circumstances attending the said fire, and am personally acquainted with the said....., whose character is good; and I believe that the above statement to which the said.....has made oath in my presence is true; that the loss cannot be imputed to fraud or misconduct on his part; and that he has suffered by the fire a loss of..... ...dollars. I am not in any way interested in the said property, or in the said policy, or any claim under the same.

In Witness of all which I have hereunto set my hand and my seal (*of office, if he has an official seal*) at....this .... day of .... in the year..... (SIGNATURE OF MAGISTRATE. [*Seal.*]

ASSIGNMENT OF A POLICY TO BE INDORSED THEREON.

I ....., insured by the within policy, in consideration of a dollar paid to me by.....and for other good considerations, do hereby assign, and transfer to the said.....this policy, together with all the right, title, interest, and claim which I now have or hereafter may have, in, to, or under the same.

Witness my hand this.....day of.....in the year.....

Witness: (SIGNATURE.)

Where it is not practicable to indorse the transfer on the policy a separate form may be used. The following form will answer:

Whereas, the.....Insurance Company, by their policy, numbered.....and dated on.....day of.....in the year .....caused me to be insured against loss or damage by fire on a certain building, being (*designate the building*) in the sum of .....dollars; now I, the said....., in consideration of one dollar paid to me by.....and for other good considerations, have transferred and assigned, and do by these presents transfer and assign unto the said.....the said policy of insurance, and all the right, title, interest or claim, which I now have or ever may have, in, to, or under the same, and in and to any sum of money which now is or shall ever be payable thereon.

Witness my hand this.....day of.....in the year . ..

Witness: (SIGNATURE.)

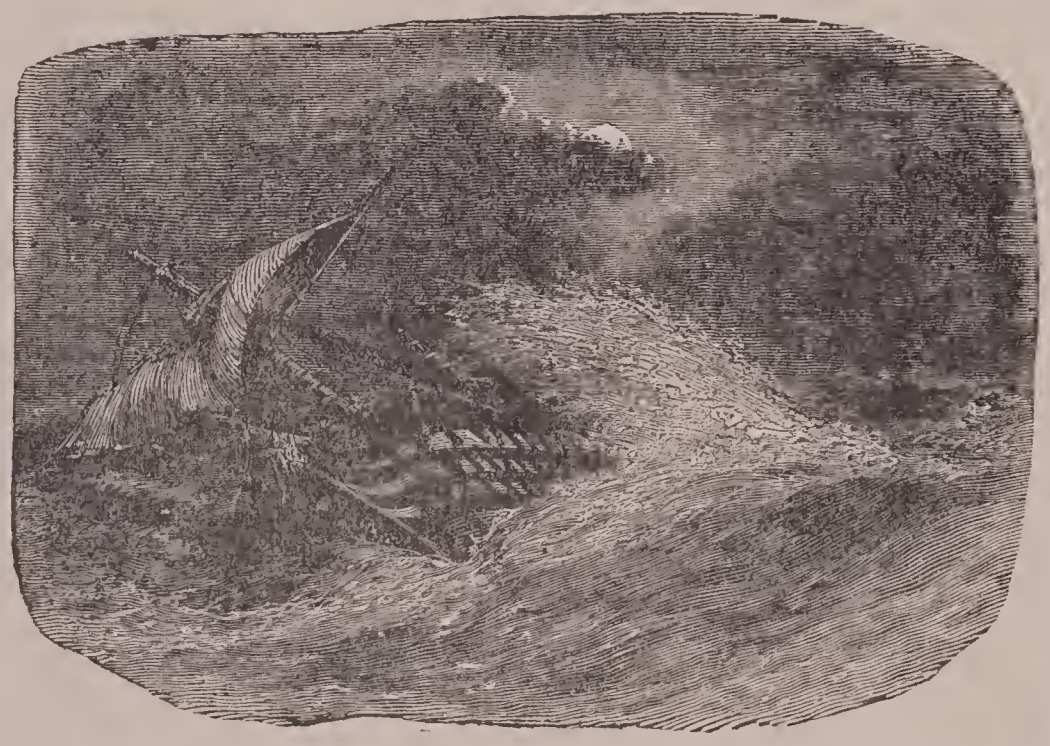
MARINE INSURANCE.

THE three great divisions of insurance are marine, fire, and life insurance. The last two are of much later origin than the first.

A marine insurance is a contract entered into between persons having some interest in vessels, their cargo, or their earnings, on the one side, and the insurers, or persons who, on the payment of a certain premium, undertake to indemnify the former against specified losses during a particular voyage, or for the time specified in the policy.

The insurers are usually called underwriters, because they write their names at the foot of the policy.

The contract of insurance is one pre-eminently based on the assumption of perfect good faith between the parties, and hence any concealment, or misrepresentation of material facts, likely to affect the underwriter's estimate of the risk, will render the policy void, even where the concealment or misrepresentation may have resulted from a mistake, without the intention to deceive.



The policy of insurance is printed with blank spaces, to be filled up with the particulars of each case.

In all voyage policies, it is implied in the contract, that the ship shall be seaworthy at the commencement of the risk; and in any case, a ship must be fit for its purpose, whether a freighting ship to Europe, a coasting schooner, or a vessel in port.

In case of any loss or misfortune, the insured and their servants are expected to labor for the recovery of the goods, merchandise, or ship, or any part thereof, for the insurers, who will bear the expenses thereof.

When an absolute total loss occurs, the assured are entitled to recover the amount of the policy, without giving any notice of abandonment. In this connection, the term, abandonment, is used to denote that, prior to compensation being demanded for the loss of a ship or goods, the owner must abandon or make over to the insurer his entire interest in any portion of the rescued property.

When the subject insured is so seriously damaged that its recovery might cost more than its eventual value, it forms a "constructive total loss," and notice of abandonment requires to be given by the insured, when the underwriters become owners of the vessel, and bound for the amount of the insurance.

When there is a partial loss, or damage, arising from any of the causes insured against, it is determined by what is known as particular average. In every case of partial loss, the underwriter is liable to pay such proportion of the sum he has subscribed as the damage sustained by the subject of insurance bears to its whole value at the time of insurance.

It is not necessary to name the ship in a policy on goods, as the insurance would be valid if it is mentioned that the goods are aboard any ship, nor is it necessary to mention in the policy the name of the party in whose favor the contract is made. If made to A, or "whomsoever it may concern," in such case an action could be maintained by any one interested and intended to be insured.

No valid insurance can be effected on a voyage undertaken in violation of law, as in violation of an embargo, or blockade, or for the purpose of trading with an enemy; and any illegality when the voyage commences would render the entire contract illegal, and would release the insurance company from any liability. But if at the time of insurance the voyage was lawful, then the insurers would only be released from liability for a loss from causes which the illegality was the immediate cause. It is a well settled principle, that insurance on property for export or import, contrary to the law where the policy is made or sought to be enforced, is void.

LIFE INSURANCE.

LIFE insurance, or assurance, is a contract for payment of a certain sum in the event of the death of a particular person, in consideration of a premium paid at once or periodically.

Assurances are said to be *absolute* when the amount of the assurance is payable on the death of the party assured; *contingent*, when the payment depends also upon some other event, as the existence of some other person or persons at the time of the death. They are also *temporary* when the sum is payable only on the expiry of the life within a certain time; *deferred*, when payable only in the event of the expiry of the life after a certain time; and for the whole life, payable at the death of the individual, whenever that may happen. Assurances are also effected on joint lives under various contingencies.

The system of life-assurance seems to have been borrowed from the marine, and the practice at first was for individuals to underwrite life risks in the same way as marine. But life-assurance is now effected in this country in a manner quite similar to that of fire-insurance by the mutual companies.

The proprietary, or joint-stock companies, are formed of persons who have subscribed a capital, on the assurance of which the business of the company is carried on, and who divide the profits entirely among themselves. In the mutual-assurance societies, on the other hand, there is no proprietary, the assured being likewise the assurers, and dividing the profits among themselves, after deducting the expenses of management, and reserving a guaranty fund.

The premiums to be paid are adjusted according to the age of the party on whose life the assurance is made; being lowest on young lives, and increasing from year to year as the expectancy of life diminishes.

Before effecting an assurance, there are certain forms to be filled up, and certain regulations to be complied with, so as to ascertain the state of health of the proposer; for unless he be in good health, the office will not undertake the risk at the ordinary rate.

If the proposer misstates or conceals anything that may affect the rate of premium, it vitiates the policy, though some offices now declare their policies to be indisputable after a certain time.

If an assurance is effected by one person on the life of another, the assurer is generally required to prove that he has a sufficient interest in the life to warrant him in taking out a policy to the extent proposed.

Most offices will generally lend the value of a policy at a moderate rate of interest on its security. It is also the practice among offices to allow a policy-holder to resign his assurance, and to return him a certain portion of the premiums paid. The sum so returned is generally about one-third of the premiums paid and the bonuses declared on the policy.

The premium to cover the risk upon life-assurance is usually paid in money, or by a note at once, if the period be for one year only, or less. For more than a year, it is usually payable annually. By agreement, it may be paid quarterly, with interest from the day when the whole is due. If notes are not given, the entire amount of the premium is presumed to be due.

A life-policy may be assigned, and the assignee of a policy is entitled, on the death of the party insured, to receive the full amount assured. An assignment may be by a separate deed, which should be properly executed and delivered. In this way a policy may be assigned, without delivery. Otherwise, a delivery and deposit of the policy would be taken as an assignment, without a written paper to that effect.

A creditor may insure the life of his debtor to the amount of all and any legal debts that may be owing or due to him; and so a trustee would have an insurable interest to the value in which he is trustee.

The insurance in the above cases is mainly a contract on the part of the insurers to indemnify the insured against loss, therefore if the claim on which the insurance is based has been satisfied, the insured would have no claim. Otherwise it would be a wager policy, as the assured would have no interest in the life insured.

Mortgages of Chattels, or Personal Property.

CHATTEL MORTGAGES are allowed in most of the states of the Union. Any form which would suffice as a bill of sale of the property, and having in addition to the words of sale and transfer, a provision for the avoidance of it when the debt is paid, would be sufficient.

Generally, the mortgagor retains possession if the mortgage be recorded. There is provision for equity of redemption, and as regards a mortgage of personal property, the period is very much shorter than that in the case of land. In the former case, the period is, usually, sixty days.

A pledge of personal property is different from a mortgage. Things subject to pledge are ordinarily goods and chattels; but money, debts, negotiable instruments, and, indeed, any other valuable thing of a personal nature, may be delivered in pledge. It is of the essence of the contract, that there be an actual delivery of the thing to the pledgee, for his right is not consummated except by possession. In virtue of

the pledge, he acquires a special property in the thing, and is entitled to the exclusive possession of it during the time and for the objects for which it is pledged.

The pledgee has a right to sell the pledge when there has been a default in the pledger in complying with the engagement; but the possession of the pledge does not suspend the right to sue for the whole debt or other engagement without selling the pledge, for it is only a collateral security. A pledgee cannot become the purchaser at a sale.

A *loan* of stock admits of the privilege of sale or pledge. The borrower can use it as he chooses in any way as he may have occasion; but he must return the same amount of the same stock, when it is required. If the stock be *pledged* to him, it cannot be so used unless by special agreement.

FORM OF CHATTEL MORTGAGE.

This Indenture, Made this second day of January, in the year of our Lord, one thousand eight hundred and eighty-four, between John Doe, of the City of Quincy, in the County of Adams and State of Illinois, party of the first part, and Samuel Roe, of

the City of Quiney, in the County of Adams and State of Illinois, party of the second part:

Witnesseth, That the said party of the first part, for and in consideration of the sum of one dollar, in hand paid, the receipt whereof is hereby aeknowledged, does hereby grant, sell, convey and confirm unto the said party of the second part, his heirs and assigns, all and singular the following deseribed goods and chattels, ***to wit:***)*List and schedule of the articles, specifying them with sufficient distinctness to make it certain what they are.*)

Together with all and singular, The appurtenances thereunto belonging, or in anywise appertaining, ***To Have and to Hold*** the same unto the said Samuel Roe, his heirs, executors, administrators and assigns, to his and their sole use FOREVER. And the said John Doe, for myself and my heirs, executors, and administrators, do..covenant and agree with the said Samuel Roe, and with his heirs, executors, administrators and assigns, that I am lawfully possessed of the said goods and chattels, as of my own property; that the same are free from all incumbrances; that I will, and my heirs, exeeutors and administrators, shall warrant and defend the same unto the said party of the second part, his heirs, executors, administrators and assigns, against the lawful claims and demands of all persons, and that I will keep the said goods and chattels insured against loss by fire for the full insurable value thereof, in such companies as the holder of the note.. hereinafter mentioned may direct, and make the loss, if any, payable to, and deposit the policies with, the holder of said note.., as further security for the indebtedness hereinafter mentioned.

Provided, Nevertheless, That if the said John Doe, his executors, administrators or assigns, shall well and truly pay, or cause to be paid, unto the said Samuel Roe, his heirs, executors, administrators or assigns, the sum of one thousand dollars, in six months from the date first above written, with eight per cent interest, as also a eertain promissory note, bearing even date herewith, signed by the said mortgagor, whereby he promises to pay the said sum and interest at the time aforesaid, then and from thenceforth these presents, and everything therein contained, shall cease, and be null and void, otherwise shall remain in full force and virtue.

And Provided, Also, That it shall be lawful for the said party of the first part, his exeeutors, administrators and assigns, to retain possession of the said goods and chattels, and at his own expense to keep and use the same until he or his executors, administrators or assigns, shall make default in the payment of said sum of money above speeified, either in principal or interest, at the time or times, and in the manner hereinbefore stated.

And the said Party of the First Part, Hereby covenants and agrees, that in case default shall be made in the payment of the note aforesaid, or of any part thereof, or the interest thereon, or any part thereof, on the day or days respectivcly on which the same, or any part thereof, shall become due and payable; or if the party of the second part, his executors, administrators or assigns, shall feel.....inseeure or unsafe, or shall fear diminution, removal or waste for want of proper care of said property; or if the party of the first part shall sell or assign, or attempt to sell or assign, the said goods and chattels, or any part thereof, or any interest therein; or if any writ issue from any court, or by any justice of the peaee, or any distress warrant shall be levied on said goods and chattels, or any part thereof; or if the party of the first part shall fail or negleet to keep the property insured for the further security of the party of the seeond part, and to deposit the policies, as aforesaid; then, and in any or either of the aforesaid eases, all of said note.. and sum.. of money, both principal and interest, shall, at the option of the party of the second part, his executors, administrators or assigns, without notiee of said option to any one, become at once due and payable, anything in said note.. or in this mortgage to the eontrary notwithstanding; and the party of the second part, his executors, administrators or assigns, or any of them, shall thereupon have the right to take immediate and exelusive possession of said property, and every part thereof, and for that purpose may pursue the same or any part thereof, wherever it may be found, and also may enter any of the premises of the said party of the first part, with or without force or process of law, wherever the said goods and chattels may be, or be supposed to be, and search for the same, and if found, to take possession of, and remove and sell, and dispose of, said property, or any part thereof, at public auetion, to the highest bidder, after giving ten day's notice of the time, place, and terms of sale, together with a description of the property to be sold, either by publication in some newspaper in the City of Quincy, or by similar notices posted up in three public places in the vicinity of such sale, or at private sale, with or without notice, for cash, or on credit, as the said Samuel Roe, his heirs, executors, administrators or assigns, agents or attorneys, or any of them, may elect, at any which sale at auction the said mortgagee, his heirs, executors, administrators or assigns, agent or attorneys, or either of them, may become the purchasers, and out of the money arising from such sale, to retain all costs and charges for pursuing, searching for, taking, removing, keeping, storing, advertising and selling such property, goods, chattels, and effects, and all prior liens thereon, together .. the amount dne and unpaid upon said note or any part of it either in principal or interest, rendering the over-plus of money arising from such sale (if any there shall be) unto John Doe or his legal representatives, which sale or sales so made shall be a perpetual bar, both in law and equity, against the party of the first part, ...legal representative and

Witness The hand and seal of the party of the first part, the day and year first above written.....

Signed, sealed, and delivered, in the presence of
JOHN DANIEL.
MARSHALL GREEN.

JOHN DOE. [*Seal.*]
SAMUEL ROE. [*Seal.*]

SHORT FORM OF CHATTEL MORTGAGE.

Know All Men by these Presents, That.....of the Town of.....in the County of.....and State of.....in consideration of the sum of.....dollars, to ....paid by..... of the County of.....and State of.....the receipt whereof is hereby acknowledged, do...hereby grant, sell, convey, and confirm, unto the said.....and to....heirs and assigns, the following goods and chattels, ***to wit:***.....

To Have and to Hold All and singular the said goods and chattels, unto the said mortgagee.. herein, and .....heirs, executors, administrators and assigns, to.....and their sole use, forever. And the mortgagor..herein, for.....and for.....heirs, executors and administrators, do....hereby covenant to and with the said mortgagee..., ...heirs, exeeutors, administrators and assigns, that said mortgagor.....lawfully possessed of the said goods and chattels, as of.....own property; that the same are free from all encumbranees, and that....will, and....executors and administrators shall, warrant and defend the same to.....the said mortgagee.., ...his heirs, executors, administrators and assigns, against the lawful claims and demands of all persons.

Provided, Nevertheless, That if the said mortgagor.., ... exeeutors or administrators, shall well and truly pay unto the said mortgagee.., ...exeeutors, administrators or assigns,..... then this mortgage is to be void, otherwise to remain in full force and effect.

And, Provided, also, That it shall be lawful for the said mortgagor.., ...executors, administrators and assigns, to retain possession of the said goods and ehattels, and at.....own expense, to keep and use the same, until....or ...executors, administrators or assigns, shall make default in the payment of the said sum of money above specified, either in principal or interest, at the time or times, and in the manner hereinbefore stated. And the said mortgagor.., hereby covenant.. and agree.. that in ease default shall be made in the payment of the note.. aforesaid, or of any part thereof, or the interest thereon, on the day or days respec-

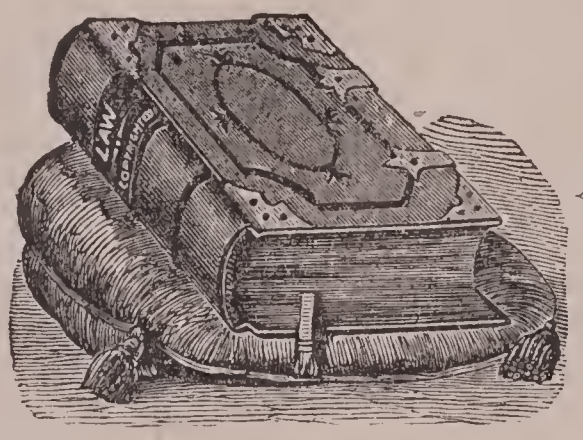
tively on which the same shall become due and payable; or if the mortgagee .. .. executors, administrators or assigns, shall feel ....insecure or unsafe, or shall fear diminution, removal, or waste of said property; or if the mortgagor.. shall sell or assign, or attempt to sell or assign, the said goods and chattels, or any interest therein; or if any writ, or any distress warrant, shall be levied on said goods and chattels, or any part thereof; then, and in any or either of the aforesaid cases, all of said note.. and sum of money, both principal and interest, shall, at the option of said mortgagee. , ...executors, administrators or assigns, without notice of said option to any one, become at once due and payable, and the said mortgagee..., ...executors, administrators or assigns, or any of them, shall thereupon have the right to take immediate possession of said property, and for that purpose, may pursue the same wherever it may be found, and may enter any of the premises of the mortgagor.., with or without force or process of law, wherever the said goods and chattels may be, or be supposed to be, and search for the same, and if found, to take possession of, and remove, and sell, and dispose of the said property, or any part thereof, at public auction, to the highest bidder, after giving.....days' notice of the time, place and terms of sale, together with a description of the property to be sold, by notices posted up in three public places in the vicinity of such sale, or at private sale, with or without notice, for cash or on credit, as the said mortgagee.., ...heirs, executors, administrators or assigns, agents or attorneys, or any of them, may elect; and, out of the money arising from such sale, to retain all costs and charges for pursuing, searching for, taking, removing, keeping, storing, advertising, and selling such goods and chattels, and all prior liens thereon, together with the amount due and unpaid upon said note.., rendering the surplus, if any remains, unto said mortgagor.., or....legal representatives.

Witness The hand.. and seal.. of the said Mortgagor.., this .....day of.....in the year of our Lord one thousand eight hundred and .. ....

Sealed and delivered in the presence of
.....
.....

..... [*Seal.*]
..... [*Seal.*]

LAW OF COPYRIGHT.



THE copyright laws of the United States, in force December 1, 1873, as amended by Act of Congress, approved June 18, 1874, is condensed so as not to occupy much space, and we give the provisions as follows:

SEC. 4948. All records and other things relating to copyrights and required by law to be preserved, shall be under the control of the Librarian of Congress, and kept and preserved in the Library of Congress; and the Librarian of Congress shall have the immediate care and supervision thereof, and, under the supervision of the Joint Committee of Congress on the Library, shall perform all acts and duties required by law touching copyrights.

SEC. 4949. The seal provided for the office of the Librarian of Congress, shall be the seal thereof, and by it all records and papers issued from the office, and to be used in evidence, shall be authenticated.

SEC. 4950. The Librarian of Congress shall give a bond, with sureties, to the Treasurer of the United States, in the sum of five thousand dollars, with the condition that he will render to the proper officers of the Treasury a true account of all moneys received by virtue of his office.

SEC. 4951. The Librarian of Congress shall make an annual report to Congress of the number and description of copyright publications for which entries have been made during the year.

SEC. 4952. Any citizen of the United States, or resident therein, who shall be the author, inventor, designer, or proprietor of any book, map, chart, dramatic or musical composition, engraving, cut, print, photograph or negative thereof, or of a painting, drawing, chromo, statute, statuary, and of models or designs intended to be perfected as works of the fine arts, and the executors, administrators, or assigns of any such person, shall, upon complying with the provisions of this chapter, have the sole liberty of printing, reprinting, publishing, completing, copying, executing, finishing, and vending the same; and, in the case of a dramatic composition, of publicly performing or representing it, or causing it to be performed or represented by others. And authors may reserve the right to dramatize or translate their own works.

SEC. 4953. Copyrights shall be granted for the term of twenty-eight years from the time of recording the title thereof, in the manner hereinafter directed.

SEC. 4954. The author, inventor, or designer, if he be still living and a citizen of the United States or resident therein, or his widow or children if he be dead, shall have the same exclusive right continued for the further term of fourteen years, upon recording the title of the work or description of the article so secured a second time, and complying with all other regulations in regard to original copyrights, within six months before the expiration of the first term. And such person shall, within two months from the date of said renewal, cause a copy of the record thereof to be published in one or more newspapers, printed in the United States, for the space of four weeks.

SEC. 4955. Copyrights shall be assignable in law by any instrument of writing, and such assignment shall be recorded in the office of the Librarian of Congress within sixty days after its execution; in default of which it shall be void as against any subsequent purchaser or mortgagee for a valuable consideration, without notice.

SEC. 4956. No person shall be entitled to a copyright unless he shall, before publication, deliver at the office of the Librarian of Congress, or deposit in the mail addressed to the Librarian of Congress, at Washington, District of Columbia, a printed copy of the title of the book or other article, or a description of the painting, drawing, chromo, statue, statuary, or model or design for a work of the fine arts, for which he desires a copyright; nor

unless he shall also, within ten days from the publication thereof, deliver at the office of the Librarian of Congress, or deposit in the mail addressed to the Librarian of Congress at Washington, District of Columbia, two copies of such copyright book or other article, or, in case of a painting, drawing, statue, statuary, model or design for a work of the fine arts, a photograph of the same.

SEC. 4957. The Librarian of Congress shall record the name of such copyright book, or other article, forthwith in a book to be kept for that purpose, in the words following: "Library of Congress, to wit: Be it remembered that on the.....day of....., ..., A. B., of....., hath deposited in this office the title of a book (*map, chart, or otherwise, as the case may be, or description of the article*), the title or description of which is in the following words, to wit: (*here insert the title or description*), the right whereof he claims as author (*originator, or proprietor, as the case may be*), in conformity with the laws of the United States respecting copyrights. C. D., Librarian of Congress." And he shall give a copy of the title or description, under the seal of the Librarian of Congress, to the proprietor whenever he shall require it.

SEC. 4958. The Librarian of Congress shall receive from the person to whom the services designated are rendered, the following fees: 1. For recording the title or description of any copyright book or other article, fifty cents. 2. For every copy under seal of such record actually given to the person claiming the copyright, or his assigns, fifty cents. 3. For recording and certifying any instrument of writing for the assignment of a copyright, one dollar. 4. For every copy of an assignment, one dollar. All fees so received shall be paid into the Treasury of the United States.

SEC. 4959. The proprietor of every copyright book or other article shall deliver at the office of the Librarian of Congress, or deposit in the mail addressed to the Librarian of Congress, at Washington, District of Columbia, within ten days after its publication, two complete printed copies thereof, of the best edition issued, or description or photograph of such article as hereinbefore required, and a copy of every subsequent edition wherein any substantial changes shall be made.

SEC. 4960. For every failure on the part of the proprietor of any copyright to deliver, or deposit in the mail, either of the published copies, or description, or photograph, required by Sections 4956 and 4959, the proprietor of the copyright shall be liable to a penalty of twenty-five dollars, to be recovered by the Librarian of Congress, in the name of the United States, in an action in the nature of an action of debt, in any district court of the United States within the jurisdiction of which the delinquent may reside or be found.

SEC. 4961. The postmaster to whom such copyright book, title, or other article, is delivered, shall, if requested, give a receipt therefor; and when so delivered he shall mail it to its destination.

SEC. 4962. No person shall maintain an action for the infringement of his copyright unless he shall give notice thereof by inserting in the several copies of every edition published, on the title-page or the page immediately following, if it be a book; or if a map, chart, musical composition, print, cut, engraving, photograph, painting, drawing, chromo, statue, statuary, or model or design intended to be perfected and completed as a work of the fine arts, by inscribing upon some visible portion thereof, or of the substance on which the same shall be mounted, the following words, viz.: "Entered according to act of Congress, in the year ...., by A. B., in the office of the Librarian of Congress at Washington;" or, at his option, the word "Copyright," together with the year the copyright was entered, and the name of the party by whom it was taken out, thus: "Copyright, 18.., by A. B."

SEC. 4963. Every person who shall insert or impress such notice, or words of the same purport, in or upon any book, map, chart, musical composition, print, cut, engraving, or photograph, or other article, for which he has not obtained a copyright, shall be liable to a penalty of one hundred dollars, recoverable one-half for the person who shall sue for such penalty, and one-half to the use of the United States.

SEC. 4964. Every person who, after the recording of the title of any book as provided by this chapter, shall, within the term limited, and without the consent of the proprietor of the copyright first obtained in writing, signed in presence of two or more witnesses, print, publish, or import, or, knowing the same to be so printed, published, or imported, shall sell or expose to sale any copy of such book, shall forfeit every copy thereof to such proprietor, and shall also forfeit and pay such damages as may be recovered in a civil action by such proprietor in any court of competent jurisdiction.

SEC. 4965. If any person, after the recording of the title of any map, chart, musical composition, print, cut, engraving, photograph, or chromo, or of the description of any painting, drawing, statue, statuary, or model or design intended to be perfected and executed as a work of the fine arts, as provided by this chapter, shall, within the time limited, and without the consent of the proprietor of the copyright first obtained in writing, signed in presence of two or more witnesses, engrave, etch, work, copy, print, publish, or import, either in whole or in part, or by varying the main design with intent to evade the law, or, knowing the same to be so printed, published, or imported, shall sell or expose to sale any copy of such map or other article, as aforesaid, he shall forfeit to the proprietor all the plates on which the same shall be copied, and every sheet thereof, either copied or printed, and shall further forfeit one dollar for every sheet of the same found in his possession, either printing, printed, copied, published, imported, or exposed for sale; and in case of a painting, statue, or statuary, he shall forfeit ten dollars for every copy of the same in his possession, or by him sold or exposed for sale; one-half thereof to the proprietor, and the other half to the use of the United States.

SEC. 4966. Any person publicly performing or representing any dramatic composition for which a copyright has been obtained, without the consent of the proprietor thereof, or his heirs or assigns, shall be liable for the damages therefor; such damages in all cases to be assessed at such sum, not less than one hundred dollars for the first, and fifty dollars for every subsequent performance, as to the court shall appear to be just.

SEC. 4967. Every person who shall print or publish any manuscript whatever, without the consent of the author or proprietor first obtained (if such author or proprietor is a citizen of the United States, or resident therein), shall be liable to the author or proprietor for all damages occasioned by such injury.

SEC. 4968. No action shall be maintained in any case of forfeiture or penalty under the copyright laws, unless the same is commenced within two years after the cause of action has arisen.

SEC. 4969. In all actions arising under the laws respecting copyrights the defendant may plead the general issue, and give the special matter in evidence.

SEC. 4970. The circuit courts, and district courts having the jurisdiction of circuit courts, shall have power, upon bill in equity, filed by any party aggrieved, to grant injunctions to prevent the violation of any right secured by the laws respecting copyrights, according to the course and principles of courts of equity, on such terms as the court may deem reasonable.

SEC. 4971. Nothing in this chapter shall be construed to prohibit the printing, publishing, importation or sale of any book, map, chart, dramatic or musical composition, print, cut, engraving, or photograph, written, composed, or made by any person not a citizen of the United States nor resident therein.

COPYRIGHTS FOR LABELS.

SEC. 3. That in the construction of this act, the words "engraving," "cut," and "print" shall be applied only to pictorial illustrations or works connected with the fine arts, and no prints or labels designed to be used for any other articles of manufacture shall be entered under the copyright law, but may be registered in

the Patent Office. And the Commissioner of Patents is hereby charged with the supervision and control of the entry or registry of such prints or labels, in conformity with the regulations provided by law as to copyright of prints, except that there shall be paid for recording the title of any print or label not a trade-mark, six dollars, which shall cover the expense of furnishing a copy of the record under the seal of the Commissioner of Patents, to the party entering the same.

GENERAL FORM OF ASSIGNMENT.

For a Consideration of.....dollars, the receipt of which is hereby acknowledged, (otherwise for value received), I hereby assign, transfer and set over to Samuel Roe, all my title and interest in and rights under a certain copyright, and the certificate thereof, bearing date the.....day of....., the title (or description) of which is in the following words, to wit: (copy from the certificate); the right whereof I claim as author (or proprietor).

To Have and to Hold the same unto the said Samuel Roe, and his legal representatives forever.

In Witness Whereof, I have hereunto set my hand, this..... day of..... JOHN DOE.

A communication enclosing an assignment to the Librarian of Congress for recording, should be properly dated at the head, as in the case of a letter, with address line to the left, underneath, "Librarian of Congress, Washington, D. C.," and then proceed as follows:

Enclosed please find an instrument of writing for the assignment of copyright No....., from Peter Poole (otherwise, ...author or proprietor) to Samuel Roe (or....., publisher), to be recorded in your office in conformity with the laws of the United States respecting copyrights.

Find also (post office order, or draft, No....., for) ..... dollars, fee for recording and certifying said instrument.

Yours respectfully,

SAMUEL ROE.

In answer to the above, a certificate of recording will be returned by the Librarian of Congress, and may read as follows:

LIBRARY OF CONGRESS,

[*Seal.*] WASHINGTON, ... 18 .

The within assignment of copyright is this day recorded in the office of the Librarian of Congress, in conformity with the laws of the United States respecting copyrights.

Witness my hand, and the seal of said office, this.....day of .....A. D. 18 ..

.....Librarian of Congress

A short form of assignment may read:

I hereby assign copyright No..... to Samuel Roe, of..... Dated ..... JOHN DOE.

LAW OF TRADE-MARK.

THE original trade-mark laws of the United States were declared unconstitutional and void by the Supreme Court, and on the third of March, 1881, Congress passed a new trade-mark law, the text of which is as follows:

AN ACT TO AUTHORIZE THE REGISTRATION OF TRADE-MARKS AND PROTECT THE SAME.

Be it enacted by the Senate and House of Representatives of the United States, in Congress assembled, That owners of trade-marks used in commerce with foreign nations, or with the Indian tribes, provided such owners shall be domiciled in the United States or located in any foreign country or tribes, which, by treaty, convention, or law, affords similar privileges to citizens of the United States, may obtain registration of such trade-marks by complying with the following requirements:

First. By causing to be recorded in the Patent Office a statement specifying name, domicile, location, and citizenship of the party applying; the class of merchandise and the particular description of goods comprised in such class to which the particular trade-mark has been appropriated; a description of the trade-mark itself, with facsimiles thereof, and a statement of the mode in which the same is applied and affixed to goods, and the length of time during which the trade-mark has been used.

Second. By paying into the Treasury of the United States the sum of twenty-five dollars, and complying with such regulations as may be prescribed by the Commissioner of Patents.

SEC. 2. That the application prescribed in the foregoing section must, in order to create any right whatever in favor of the party filing it, be accompanied by a written declaration verified by the person, or by a member of a firm, or by an officer of a corporation applying, to the effect that such party has at the time a right to the use of the trade-mark sought to be registered, and that no other person, firm, or corporation has the right to such use, either in the identical form or in any such near resemblance thereto as might be calculated to deceive; that such trade-mark is used in commerce with foreign nations or Indian tribes, as above indicated; and that the description and facsimiles presented for registry truly represent the trade-mark sought to be registered.

SEC. 3. That the time of the receipt of any such application shall be noted and recorded. But no alleged trade-mark shall be registered unless the same appear to be lawfully used as such by the applicant in foreign commerce, or commerce with Indian tribes, as above mentioned, or is within the provision of a treaty, convention, or declaration with a foreign power; nor which is merely the name of the applicant; nor which is identical with a registered or known trade-mark owned by another and appropriate to the same class of merchandise, or which so nearly resembles some other person's lawful trade-mark as to be likely to cause confusion or mistake in the mind of the public, or to deceive purchasers. In an application for registration the Commissioner of Patents shall decide the presumptive lawfulness of claim to the alleged trade-mark; and in any dispute between an applicant and

a previous registrant, or between applicants, he shall follow, so far as the same may be applicable, the practice of courts of equity of the United States in analogous cases.

SEC. 4. That certificates of registry of trade-marks shall be issued in the name of the United States of America, under the seal of the Department of the Interior, and shall be signed by the Commissioner of Patents, and a record thereof, together with printed copies of the specifications, shall be kept in books for that purpose. Copies of trade-marks and of statements and declarations filed therewith and certificates of registry so signed and sealed, shall be evidence in any suit in which such trade-marks shall be brought in controversy.

SEC. 5. That a certificate of registry shall remain in force for thirty years from its date, except in cases where the trade-mark is claimed for and applied to articles not manufactured in this country; and in which it receives protection under the laws of a foreign country for a shorter period, in which case it shall cease to have any force in this country by virtue of this act at the time that such trade-mark ceases to be exclusive property elsewhere. At any time during the six months prior to the expiration of the term of thirty years such registration may be renewed on the same terms and for a like period.

SEC. 6. That applicants for registration under this act shall be credited for any fee or part of a fee heretofore paid into the Treasury of the United States with intent to procure protection for the same trade-mark.

SEC. 7. That registration of a trade-mark shall be *prima facie* evidence of ownership. Any person who shall reproduce, counterfeit, copy, or colorably imitate any trade-mark registered under this act and affix the same to merchandise of substantially the same descriptive properties as those described in the registration, shall be liable to an action on the case for damages for the wrongful use of said trade-mark at the suit of the owner thereof; and the party aggrieved shall also have his remedy according to the course of equity to enjoin the wrongful use of such trade-mark used in foreign commerce or commerce with Indian tribes as aforesaid, and to recover compensation therefor in any court having jurisdiction over the person guilty of such wrongful act: and courts of the United States shall have original and appellate jurisdiction in such cases without regard to the amount in controversy.

SEC. 8. That no action or suit shall be maintained under the provisions of this act in any case when the trade-mark is used in any unlawful business or upon any article injurious in itself, or which mark has been used with the design of deceiving the public in the purchase of merchandise, or under any certificate of registry fraudulently obtained.

SEC. 9. That any person who shall procure the registry of a trade-mark, or of himself as the owner of a trade-mark, or an entry respecting a trade-mark, in the office of the Commissioner of Patents, by a false or fraudulent representation or declaration, orally or in writing, or by any fraudulent means, shall be liable to pay any damages sustained in consequence thereof to the injured party, to be recovered in an action on the case.

SEC. 10. That nothing in this act shall prevent, lessen, impeach, or avoid any remedy at law or in equity which any party aggrieved by any wrongful use of any trade-mark might have had if the provisions of this act had not been passed.

SEC. 11. That nothing in this act shall be construed as unfavorably affecting a claim to a trade-mark after the term of registration shall have expired; nor to give cognizance to any court of the United States in an action or suit between citizens of the same State, unless the trade-mark in controversy is used on goods intended to be transported to a foreign county, or in lawful commercial intercourse with an Indian tribe.

SEC. 12. That the Commissioner of Patents is authorized to make rules and regulations and prescribe forms for the transfer of the right to use trade-marks and for recording such transfers in his office.

SEC. 13. That citizens and residents of this country wishing the protection of trade-marks in any foreign country the laws of which require registration here as a condition precedent to getting such protection there, may register their trade-marks for that purpose as is above allowed to foreigners, and have certificate thereof from the Patent Office.

Approved March 3, 1881.

FOREIGN AND United States Patents.

GENERAL FEATURES OF PATENT-RIGHTS—HOW TO GET A PATENT—COST OF PATENTS IN AMERICA AND EUROPE.

THE patent-right is a privilege granted by government to an inventor on account of a new contrivance or improvement in the manufactures, granting him a monoply in his invention for a number of years. The principal classes of patents embrace (1) new contrivances applied to new ends; (2) new contrivances applied to old ends; (3) new combinations of old parts, whether relating to material, objects, or processes; (4) new methods of applying a well-known object.

Novelty and utility are the two great features of an invention, without which a patent would be invalid. The degree of utility need not be great, but it must be something applicable to the production of a marketable article. It must also be a manufacture.

When an invention has been made for which it is desired to procure a patent, the inventor should not, on account of impecuniosity or other hindering causes, promise or barter away a half or undivided portion of the device. It is too often the case that inventors of this class, for want of money, and pressure of circumstances, abandon or throw away the results of their thought and ingenuity. Every inventor should hold on to what he has conceived until he has intelligently explained its merits to some one of means, who will advance the small sum required to secure a patent. In order to gain the desired assistance, the inventor may grant a privilege for a town or county to the party who backs up his appreciation of the improvement by a loan. For this purpose the following conveyance will, in general, be ample:

Whereas, I, Richard Roe, of.... ...County of .....State of.....have invented a new and useful improvement in musica instruments, for which I am about to apply for letters-patent; and whereas, John Doe, of ..... hath advanced to me the sum of one hundred dollars toward the expenses of said patent:

Now this Indenture Witnesseth, That for and in consideration of said payment to me made, I do hereby grant and convey to the said John Doe, his heirs or assigns, a license to make, use, and sell the invention, within the limits of the county of..... State of..... for and during the full end of the term for which said letters-patent are or may be granted.*

Witness my hand and seal, this first day of January, A. D. 18 ..

The filing of a caveat affords immediate protection against the issue of a patent to any other person for the same invention. A caveator is officially notified when another party has applied on account of the same device, and called upon to file his application for a patent. A caveat runs for a year and can be extended from year to year. Caveats can only be filed by citizens of the United States, or aliens who have resided here one year and have declared their intention to become citizens.

All caveats are secret, and no one can see or obtain a copy of a caveat without the order of the caveator. The filing of a caveat does not secure any exclusive right of sale, and has nothing to do with the grant of a patent. The object of a caveat is to give time for the accommodation and convenience of the inventor, who desires to test or perfect his device. A caveat

* If further inducement is desirable, the following may be inserted:
"And I do hereby further agree, that all of the net profits by me in any manner made or received from the said invention and patent shall belong to and shall be delivered unto the said John Doe, until he shall have received back the said sum of one hundred dollars, with lawful interest thereon."

consists of a petition, specification, drawing, and affidavit of invention. These papers should be carefully drawn up and the invention explained as fully as possible. No model is required, and the government makes no examination as to new features when a caveat is filed. On filing the caveat in Washington the Patent Office issues an official certificate.

The official cost for applying for a simple patent is $15, and when allowed, $20 more are payable, making in all $35. If a patent is not granted the applicant loses the cost of making the application.

Patents are granted to persons of any nationality on payment of the same official fee, and are also granted to women, minors and executors or administrators of deceased inventors.

Duration of patent is seventeen years. Extensions are prohibited on all patents granted since 1861. Extensions can only be granted by act of congress. Application for extension must be filed and requisite fee paid, ninety days before expiration of the patent.

The average time required to procure a patent is six weeks.

In the event of a refusal to allow a patent by the examiner of patents, an inventor has the privilege of appeal. Government fee payable by the applicant, on making an appeal to the Examiner-in-Chief, is $10. An appeal may be taken from the decision of the Examiner-in-Chief to the Commissioner of Patents; government fee, $20. From the decision of the Commissioner of Patents an appeal may be taken to the Supreme Court of the District of Columbia.

Where there is any doubt about the patentability of an invention, the applicant, through a reliable agent, may order a preliminary examination at a cost of five dollars.

Applicants for patents are not required to furnish models unless officially required to do so. Where a model is called for, it should be neatly made, and it is requisite that its bulk do not exceed twelve inches. In making a model of an improvement on some existing machine, it is unnecessary to embrace the whole machine, as, for instance, the model of a car-coupler need not include a complete car, wheels and all.

Models may be made in any kind of material, as, for instance, an applicant may make a model in wood of some article that is intended to be manufactured in glass; or models may be part wood, part metal. A model should be made under close supervision of the inventor interested in its construction, if not made with his own hands..

Inventors can save time and money by having their business at Washington attended to by a good agent, who is familiar with the details of procuring patents.

The Patent-Office does not prepare patent papers, or make models. These must be provided by the applicant or his attorney, according to law, otherwise his claim will not be considered. It is requisite that all documents deposited in the Patent-Office shall be correctly and legibly written, and that the drawings shall be of a specified size, and finished in an artistic manner.

The personal attendance of applicants at the Patent-Office is unnecessary. Their business can be transacted by correspondence. All business with the office should be transacted in writing. All office letters must be sent in the name of the "Commissioner of Patents."

Freight, postage, express charges, and all other charges on matter sent to the Patent-Office must be prepaid.

Any person of intelligence and good moral character may appear as the agent or the attorney in fact of an applicant, upon filing a proper power of attorney.

Applications for letters-patent of the United States must be made to the Commissioner of Patents. A complete application comprises the petition, specification, oath, and drawings, and the model or specimen when required. The petition, specification, and oath must be written in the English language.

"The applicant for a patent is required by law to furnish a drawing of his invention where the nature of the case admits of it. The drawing must be signed by the inventor or by his attorney in fact, and attested by two witnesses, and must show every feature of the invention covered by the claims, and when the invention consists of an improvement on an old machine, it must exhibit, in one or more views, the invention itself, disconnected from the old structure, and also, in another view, so much only of the old structure as will suffice to show the connection of the invention therewith."

"Drawings must be made upon pure white paper of a thickness corresponding to three-sheet bristol board. The surface of the paper must be calendered and smooth. India ink alone must be used, to secure perfectly black and solid lines. The size of a sheet on which a drawing is made must be exactly ten by fifteen inches." All drawings must be made with the pen only.

Drawings should be made with the fewest lines possible consistent with clearness. Letters and figures should be carefully formed.

If any one applies for a patent, and it appears a patent for the same thing has been granted to another person, the applicant may ask for a declaration of interference, when an investigation will be made to decide priority of claim.

Assignment of an invention may be made by the inventor or author, either before or after the patent has been applied for, or after the patent has been issued. The deed of assignment of a patent, or any portion of a patent, must be recorded at the Patent Office.

Application papers must be made in the name of the real inventor only, who can sign an assignment in favor of a partner, when the Commissioner of Patents will allow the patent to be issued to them jointly. The cost of this assignment is $5. Joint inventors are entitled to a joint patent; neither can claim one separately.

A new patent will be issued and an old one canceled where mistakes or defects render it necessary. Reissues of patents may be petitioned for as often as desired. New improvements must be separately applied for and cannot be included in a reissue.

A patent for ornamental design, as, statue, bas-relief, printing of fabrics, pattern, or any new, useful and original article of manufacture may be granted to any one, whether citizen or alien. Patents for designs are granted for a term of three and one-half years, seven years, or fourteen years, as desired. A design patent expires at the end of the term for which it is first granted—no extension. No models are required of designs.

Design patents are only granted for ornamental productions, not for mechanical or other inventions. The business relating to design patents can be done by correspondence with reliable patent agents. Photographs of designs only need to be large enough to represent clearly all the features in any case, and should not be mounted.

Trade-marks are registered at the Patent Office for those who desire their use.

After a patent is issued it is under the control of its owner, and not subject to additional payments or taxes of any kind.

PATENTS IN FOREIGN COUNTRIES.

An inventor may, after a patent has been allowed in this country, arrange for patents in foreign countries, while his home patent remains in the secret archives of the Patent Office for a period not exceeding six months. If the inventor permits his home patent to issue before he has applied for foreign patents, he is liable to suffer loss in European countries through others who may appropriate the main features of his invention.

The following schedule shows the best countries in which to take patents:

	PATENT APPLICATION COSTS.	POPULATION.
Canada	$ 50	5,000,000
England	75	40,000,000
Germany	100	45,000,000
France	100	45,000,000
Belgium	100	6,000,000
Spain	100	18,000,000

The Spanish patent includes Cuba, Porto Rico, Phillipines, and all the Spanish colonies.

In the following countries the costs to apply for patents are: Austria, $100; Italy, $150; Russia, $300; Sweden, $100; Norway, $100; Portugal, $400; British India, $400; Australia and other British colonies, each about $300.

UNITED STATES PATENT FEES.

On filing each caveat	$10.00
On filing each original application for a patent, except for a design	15.00
On issuing each original patent	20.00
On every appeal from Examiners-in-Chief	20.00
On application for a reissue	30.00
On application for extension	50.00
Granting an extension	50.00
Filing each disclaimer	10.00
Certified copies of patents and other papers, per 100 words	.10
Recording every assignment, agreement, power of attorney, and other papers, of 300 words or under	1.00
If over 300 and under 1,000	2.00
If over 1,000 words	3.00
Drawings, cost of making same.	
Patents for designs, for three and a half years	10.00
" " for seven years	15.00
" " for fourteen years	30.00

Duration of patent in Great Britain, fourteen years; in France, fifteen years; in Belgium, twenty years.

RECOVERY AND

Collection of Debts.

DEBT, (I owe), is that which one person owes to another, whether it be money, goods, or services. In law debts are usually divided into debts of record, debts by special contract, and debts by simple contract. A debt of record is a sum of money which appears to be due by the evidence of a court of record, or adjudged to be due on an action at law. A debt by specialty, or special contract, is where a sum of money becomes due, or is acknowledged to be due, by deed or instrument under seal, such as by deed of covenant or sale, bond or obligation, etc. A debt by simple contract is an obligation depending upon mere oral evidence, or upon notes unsealed, within which class fall bills of exchange and promissory notes. Debt is also a personal action of contract, which lies for the recovery of a debt in its technical sense, *i. e.* a certain amount of money due by one person to another.

In many of the states there is no arrest or imprisonment for debt. Cases of durance are limited to those guilty of fraud in contracting debts, or debtors intending to hide or conceal themselves.

The garnishee or trustee process of collecting debts is becoming common. Garnishment is a warning or notice given to a party not to pay money, etc., to a defendant, but to appear and answer to a plaintiff creditor's suit.

If A owes B a debt, and he has nothing in his own possession to use in payment of the debt, but has deposited goods or credit with C, or has some valid claim against C for work done or services rendered, B may attach the property or wages in the hands of C, by suit against the latter, in order to get what is due him. C is, in fact, the trustee of A. The trustee, being notified, may answer that he has no goods or property in his hands belonging to A, and he may declare that he owes A nothing for services. Whereupon the plaintiff (B) will so interrogate C as to draw out the facts in the case.

In most of the states there are provisions for the protection of a homestead from creditors. There are also exemption laws, which provide that the more necessary articles of furniture, food and fuel, shall not be subject to attachment or execution.

When meditating a removal from one state to another, it is important to ascertain what the provisions of the exemption law of the state are. Likewise, those who have dealings with or send or trust out goods to persons residing in other states, should have a clear understanding of the exemption laws of the states. This is the more imperative as it seems in some states an acre or half acre of ground, without regard to location or value, is exempt from forced sale. So much ground, with improvements, if located inside a city corporation, may have a value of a hundred thousand dollars or more, and the owner of it, under the exemption law, might enjoy so large a fortune without being compelled to pay his debts.

ABSTRACT OF HOMESTEAD AND EXEMPTION LAWS.

ALABAMA.

THE personal property of every resident of the state, to the value of one thousand dollars, to be selected by such resident, shall be exempt. A homestead, not exceeding one hundred and sixty acres of land, and the dwelling house and appurtenances thereon, or in lieu thereof, at the option of the owner, when within the limits of any city, town, or village, a lot, residence and appurtenances thereto, not to exceed in value two thousand dollars; in either case the homestead so exempted must be owned and occupied as a residence by the debtor. The above exemption is not operative against a laborer's lien for work performed for the debtor, nor against a mechanic's lien for labor rendered on the premises. All employes or laborers have exempt twenty-five dollars of their salaries per month. The homestead and personal property above mentioned, revert to the widow and minor child or children of the debtor at his death.

And in addition to the foregoing exemptions, there is also exempt the wearing apparel of the deceased, and the wearing apparel of the widow and children, all yarn and cloth on hand intended for their use and consumption, the family bibles and books, all family pictures, and such grain, stores and groceries on hand as may be necessary to keep the family for one year. All of the above mentioned property is required to be set apart by three disinterested persons, who are to be selected, two of them by the widow, if there should be one, and the other by the judge of probate court. Such property shall forever be exempt from the debts of the deceased.

Lots used for burial places, pews in churches, all necessary wearing apparel for each member of a family, are also exempt.

ARKANSAS.

THE exemptions may be found in the constitution, which provides that unmarried residents may select from their personal property, not to exceed in value two hundred dollars, which, including his wearing apparel, shall be exempt from any claims of creditors, except for debts contracted for the purchase money therefor while in the hands of the vendee. Married residents, who are at the head of families, may select from their personal property such articles as they may choose, not to exceed in value the sum of five hundred dollars, which, in addition to the wearing apparel of the family, shall be exempt. The homestead of heads of families is also exempt, excepting where the debt is for one of the following items: "Purchase money, or specific liens, laborer's or mechanic's, liens for improving same, for taxes, or against executors, administrators, guardians, receivers, attorneys, for moneys collected by them, and other trustees of an express trust, for moneys due from them in their fiduciary capacity."

Where the homestead is located outside of a city, town, or village, and occupied as a residence, it shall consist of not exceeding one hundred and sixty acres of land, and the improvements thereon, provided the same shall not exceed in value twenty-five hundred dollars, but the homestead cannot be reduced to less than eighty acres, regardless of value. Where the homestead is in a city, town or village, and is owned and occupied as a residence, it shall consist of not exceeding one acre of land, with improvements thereon, such as the owner may select, providing the land and improvements do not exceed two thousand five hundred dollars in value, and cannot be reduced to less than one-fourth of an acre, without regard to value.

If the owner of a homestead die, leaving a widow, but without children, where the said widow has no separate homestead in her own right, the same shall be exempt, and all rents and profits shall go to her during her life: if the owner has left child or children, they or it shall share with the widow, and be entitled to half the rents and profits until their twenty-first birth-day, after which it shall go to the minor children, then to the widow. At the death of the widow, the homestead goes to the minor children of the testate or intestate.

CALIFORNIA.

A HOMESTEAD, consisting of the dwelling house in which the claimant resides and the land on which the same is situated, may be selected in manner provided by law, and claimed as exempt from forced sale, of five thousand dollars in value by any "head of a family," and of one thousand dollars in value by any other person.

Within this limit as to value, there is no limit as to extent. The homestead must be actually used as a homestead by the person setting it apart, and may include the dwelling house, all usual, necessary, or convenient appurtenances, and the land

actually used for the purposes of a homestead. If in the country, it may include a garden or farm. If in a city, or town, it may include one or more lots, or blocks.

If the selection is made by a married person from the "Community property," the land, upon the death of either spouse, becomes the property of the survivor, retaining the exemptions and privileges as a homestead. If selected from the separate property of either spouse, or by one not married, the land, upon the death of the person from whose property it was selected, goes to his heirs or devisees, subject to the power of the court to assign it for a limited period to the use of the family of the deceased.

In personal property specific articles are exempt from execution; including chairs, tables, desks, and books, to the value of $200; necessary household, table and kitchen furniture, wearing apparel, utensils, and implements of trade, used by the debtor in carrying on his business; poultry not exceeding $25.00 in value, and earnings for personal services of debtor rendered within thirty days, when such earnings are necessary for the use of his family.

But in no case is an article exempt from execution issued upon a judgment for its purchase price, or upon a judgment of foreclosure of a mortgage thereon.

COLORADO.

HOUSEHOLD goods not to exceed in value two hundred dollars; tools, stock in trade or implements not to exceed in value two hundred dollars; provisions for the debtor's family for six months; if a professional man, he may retain a library and implements to the value of three hundred dollars. Working animals to the value of two hundred dollars, one cow and calf, ten sheep, and food for them for six months, farming implements not to exceed in value fifty dollars, and a homestead to the value of two thousand dollars, which, in order to be exempt, must have the word "homestead" entered in the recorded title of the same, which must be signed by the owner, and attested by the recorder of the county where the premises are located, including the date and time the entry was made.

CONNECTICUT.

THE property exempted and not liable to be taken by warrant or execution from any one person is scheduled and consists of the following articles: Necessary wearing apparel, bedding and household furniture, sufficient to support life; any member of the militia is allowed, for military purposes, arms, equipments, uniforms or musical instruments. A pensioner would be allowed, while in his hands, any money received as a pension from the United States. A debtor is allowed his library to the value of five hundred dollars; one cow, not to exceed in value one hundred and fifty dollars; any number of sheep not to exceed ten, nor to exceed in value one hundred and fifty dollars; poultry not to exceed the value of twenty-five dollars; two swine and the pork from two swine, or two hundred pounds of pork and two swine. Where the person is at the head of a family, he would be allowed twenty-five bushels of charcoal and two tons of other coal, two hundred pounds wheat flour, two tons hay, two hundred pounds of beef and fish, two cords of wood, five bushels each of turnips and potatoes, ten bushels each of rye and Indian corn, and the meal or flour manufactured therefrom, twenty pounds each of flax and wool, or the yarn or cloth made therefrom; the horse of any practicing physician or surgeon, not exceeding the value of two hundred dollars, and his saddle, bridle, harness and buggy; one boat, owned and used by one person, who is in the business of taking or planting oysters or clams, or taking shad, including the tackle, rigging, sails, and the implements used in such business, not to exceed in value two hundred dollars; one pew which is the property of a person having a family who occupy it; one sewing machine which is the property of the person using it, or of one who has a family; the lots in cemetery or burying-ground, appropriated by its proprietors as a place to bury any one person or a family; any money due the debtor for his personal services, not in excess of ten dollars; or if the debtor has a wife or family, twenty-five dollars; any benefits allowed by associations for the support of sick or infirm members is exempted from foreign attachments.

Excepting where suits are brought to recover money due on house-rent, provisions, clothing or fuel, furnished to the debtor for family use, ten dollars only shall be exempted, and only three dollars shall be exempted for debts accruing for board furnished the debtor or his family.

Wages of a minor to the amount of ten dollars are exempt when the action is brought for other debts than those arising from necessaries furnished the minor.

DELAWARE.

SCHOOL BOOKS, family library, family pictures, seat of pew in church, family bible, lot in burying-ground, the debtor's and his family's wearing apparel, and such tools and implements as are necessary in conducting a business or trade, not in excess of seventy-five dollars, in New Castle and Sussex counties, and fifty dollars in Kent county.

Household goods, to the head of a family, not to exceed two hundred dollars in New Castle county, and in Kent county not to exceed one hundred and fifty dollars.

Sewing machines owned by seamstresses or private families are exempt.

In New Castle county, all wages are exempt.

Widows, in all cases, shall have the benefit of the same exemption out of the husband's property that he would have had if living.

Before any application to the execution, the funeral expenses, all reasonable bills for medical attendance and medicine, and all necessary expenses for last sickness must be paid.

But if at the time of the execution of the process, the debtor is not in possession of all or any of the specified articles, other property to that value shall be exempt.

FLORIDA.

TO EACH head of a family, one thousand dollars' worth of personal property, such as he or she may select; a homestead of one hundred and sixty acres, including the improvements thereon. Several tracts may be set apart to make up the one hundred and sixty acres, providing that it is not all in one body, or in lieu of this, the head of the family, where owned by him or her, can have one-half of one acre within the limits of any incorporated city or town, including the improvements thereon, providing that they shall not extend to more improvements than the residence and business house of the owner.

No exemptions allowed from sale for taxes, or for obligations contracted for the purchase of premises, or improvements on same, or for any labor performed on the premises.

Money due for the personal labor or services of the one who is at the head of a family is exempt from attachment or garnishment.

GEORGIA.

TO EVERY head of a family, or guardian, or trustee of a family of minor children, or every aged or infirm person, or a person having the care of a dependent female of any age, who is not the head of a family, realty or personalty, or both, not to exceed in value, in the aggregate, the sum of sixteen hundred dollars, excepting where the debt sought to be recovered is for taxes assessed and due on the exempted property, or for the purchase money of the property, or for labor performed thereon, or for any material furnished which remains on the property, or for the canceling of any mortgage or other incumbrance on the same. The debtor cannot waive, even though it be in writing, his benefit of exemption as to wearing apparel, and three hundred dollars' worth of household and kitchen furniture and provisions, such as he may select.

Where a debtor, being the head of a family, does not claim the above exemptions, he may choose those allowed by prior laws, which are as follows:

Fifty acres of land, and five additional acres for each child under sixteen years of age, including the dwelling house, if not worth over two hundred dollars. The land must be located in the country, not in a city, town or village, nor must it have on it any factory, mill or other machinery propelled by water or steam, the value of which exceeds two hundred dollars. When the debtor's property is within a city, town or village, the homestead must not exceed in value five hundred dollars. One horse or one mule for farm use; one cow and calf; ten head of hogs, and fifty dollars' worth of provisions, and five dollars' worth additional for each child; beds, bedding, and common bedsteads sufficient for the family; one loom, one spinning wheel, two pair of cards, and one hundred pounds of lint cotton; common tools of trade of himself and wife; ordinary cooking utensils and table crockery; wearing apparel of himself and family; the library of a professional man in actual practice, or business, not to exceed three hundred dollars in value; fifty bushels corn, one thousand pounds fodder, a one-horse wagon, one set of chairs, one table, and household and kitchen furniture, all not to exceed one hundred and fifty dollars in value.

Either class of the above exemptions may be allowed, but not both.

ILLINOIS.

THE necessary wearing apparel, school books, bibles, and family pictures of every person, and one hundred dollars' worth of other property, such as the debtor may select; and in addition, where the debtor is at the head of a family, residing with them, three hundred dollars' worth of property, such as he may select, providing that it is not from salary, money, or wages due him. Exemptions are not allowed when the debt claimed is for the wages of a laborer or servant.

A householder having a family is allowed his residence, including a farm, or lot of land and buildings thereon, and occupied as a residence, to the value of one thousand dollars.

The homestead is not exempt from liabilities incurred for the purchase or improvements. If the head of the family dies, deserts, or does not reside with the family, it would be entitled to the exemptions.

INDIANA.

HOUSEHOLDERS are allowed real or personal property to the amount of six hundred dollars, on any contract made since May 31, 1879, and may be claimed by the wife if the husband should be absent. If the debt was created previous to May 31, 1879, the exemption would then be three hundred dollars.

No exemptions allowed for purchase money, taxes, or liens for labor.

Where a debtor makes a voluntary assignment, he or she would be allowed six hundred dollars without regard to the time debts were contracted.

No homestead exemptions.

It is provided further by law that no property shall be sold on account of an execution for less than two-thirds of its appraised cash value. The provisions of this law can be waived in contracts, and to do this the note or contract should be in the following terms: "Payable without relief from valuation or appraisement laws."

IOWA.

To householders who are residents of the state, his own and his family's wearing apparel, such as is kept and used by them, and is suitable to their condition, including their trunks in which to keep the same; one rifle, or musket, and shot-gun, family library, pictures, family bible, portraits, paintings and musical instruments, which are not kept for sale; a pew in church; a lot in burying ground, not more than one acre; two cows and one calf; one horse; six stand of bees; five hogs, and all pigs under six months; fifty sheep, including the wool from them and the materials manufactured from such wool; the necessary food for all animals for six months; the flax raised on not exceeding one acre of ground including the manufactured goods therefrom; one bedstead and the necessary bedding for every two members of the family; one hundred yards of cloth manufactured by the debtor; all household and kitchen furniture not exceeding two hundred dollars; spinning wheels and looms kept for actual use; one sewing machine kept for use; provisions for family use, including fuel, for six months. All proper tools, books and instruments of the debtor, if the debtor shall be a mechanic, lawyer, farmer, clergyman, surgeon, physician, teacher or a professor; the horse or team, if not more than two horses or mules; or two yoke of oxen and one wagon and the proper harness, by the use of which the debtor habitually earns a living. Where the debtor is a printer, he is allowed one printing press and the types, material and furniture necessary for such printing press and a newspaper office connected, not to exceed the value of twelve hundred dollars. If the debtor at the head of a family has started to leave the state, he would only be allowed to have exempt the ordinary wearing apparel and seventy-five dollars' worth of such property as he might select. No exemptions against purchase money. A homestead in a city or town not in excess of one-half acre, or not more than forty acres of land out of a town or city, including, in both cases, all the buildings and improvements thereon regardless of value. Unmarried persons, or non-residents, their own wearing apparel and trunk in which to keep the same.

KANSAS.

A HOMESTEAD of one hundred and sixty acres of farming land, or one acre within the limits of an incorporated city or town, with all the improvements on the same, where occupied by the owner as a residence for his family; but not exempt for purchase money or for any improvements thereon, or for taxes. Householders are entitled to have exempt the following articles: family library, musical instruments, a seat or a pew in church, one lot in a burial-ground, bedsteads, bedding, wearing apparel, stoves and cooking utensils used by the family, all implements of industry, one sewing machine, five hundred dollars' worth other household furniture, one yoke of oxen, one horse or mule, or in lieu a span of horses or mules; ten hogs and two cows; twenty sheep and the wool from the same; necessary food for the stock for one year, either provided or growing; farming utensils, harness, etc., not to exceed in value three hundred dollars; provisions and fuel for family for one year; all tools and implements of a mechanic, miner or other person used for the purpose of carrying on his business, and in addition, a stock in trade not to exceed the value of four hundred dollars; the implements, library and office furniture of a professional man. Where the resident is not at the head of a family, he has exempt his wearing apparel, church seat, burial lot; if a professional man, his office furniture, library and implements; to one carrying on business, a stock in trade not to exceed in value the sum of four hundred dollars.

KENTUCKY.

THE usual household and kitchen furniture to the value of one hundred dollars; one yoke of oxen or two work beasts, two cows and calves, five sheep, wearing apparel of the family. On all debts created after June 1, 1866, so much land, including the dwelling house and appurtenances owned by the debtor, not to exceed the value of one thousand dollars; one sewing machine, one two-horse wagon or ox cart, one set of gear, carpeting for one room, all school books, one prayer and one hymn book, washing apparatus not to exceed the value of fifty dollars, one wash stand, one wardrobe, six cups and saucers, six plates, one clock, six knives and forks, and on all debts created after May 1, 1870, the libraries of preachers, the professional libraries of physicians and surgeons and their instruments to the value of five hundred dollars, and the professional libraries of all lawyers; one horse or cart for a laboring man, tools of a mechanic, not to exceed the value of one hundred dollars, where the mechanic is a housekeeper and with his family; the wages of all persons who work for wages, up to fifty dollars. Not applicable to debts contracted for food, clothing, or house rent.

LOUISIANA.

HOUSEHOLDERS are entitled to an exemption of property both real and personal not to exceed in value the sum of two thousand dollars, consisting of the homestead, either of farm lands, or city or town improved property, and the following personal property: one yoke of oxen, two cows and calves, one work horse, one cart or wagon, twenty-five hogs, or in lieu one thousand pounds of bacon or its equivalent in pork; it is not necessary that these should be attached to the homestead, but if on a farm the debtor would be allowed corn and fodder sufficient for one year, also all farming implements not to exceed in value the sum of two thousand dollars. A husband would not be entitled to any exemption, whose wife owns in her own right any

property or any means to the value of two thousand dollars. The above exemptions are provided for by the constitution of 1879. By act of 1876, the bed or clothes of the debtor or his wife or family, his arms and accoutrements, tools, sewing machines, books, etc., needed for his or her calling or livelihood, cannot be seized; nor household furniture and cooking utensils, the musical instruments used by any member of the family; and if any person should induce another to sign away his rights to the above enumerated property, he would be subject to a fine up to two hundred dollars, and may be imprisoned not to exceed six months.

MAINE.

ANY householder of the head of a family may have exempt from liability for all debts except for liens of mechanics and material men, a lot of land and buildings for a homestead, to the value of five hundred dollars, providing the owner files a certificate signed by himself, declaring his wishes and describing his homestead, with the register of deeds in the county where the property is located; and also one lot in a burying-ground, and the following personal property: one bedstead and the necessary bedding for every two members of family, the necessary wearing apparel, family portraits, school books and bibles in use; fifty dollars' worth of household furniture; one cooking, and all iron heating stoves; pew in church, one hundred and fifty dollars worth of books used as family library, twelve cords of wood at home for use, five tons of anthracite and fifty bushels of bituminous coal, ten dollars' worth of lumber, wood or bark, thirty bushels of corn, grain and potatoes, one barrel of flour, all produce, half acre flax and manufactures therefrom for use, sewing machine of one hundred dollars' value, span of mules or horses not to exceed in value three hundred dollars, and hay to keep them over winter, tools of trade, one set of harness to the value of twenty dollars for each mule or horse; a horse or ox sled; one cow and a heifer under three years, two swine; two cows, if no oxen, horse or mule; ten sheep with their wool and lambs until one year old, hay enough to keep them through winter; one plow, one cart or truck wagon, one yoke and appendages, a harrow, two chains, one ox sled, a mowing machine, insurance policies, unless annual cash payments are in excess of one hundred and fifty dollars; a boat of two tons capacity, if owned exclusively by an inhabitant of the state.

MARYLAND.

THE necessary wearing apparel for the family; family library in use, mechanic's tools when kept for use in earning a living, also one hundred dollars' worth of other property such as the debtor may select. If the one hundred dollars' worth of property cannot be selected, then a sale may be ordered, and one hundred dollars in money paid to him. Exemptions not allowed when judgments are for seduction or breach of promise of marriage.

MASSACHUSETTS.

HOUSEHOLDERS may have exempt from execution a homestead not to exceed in value eight hundred dollars. Where it is designed to hold the homestead free from execution it must be so recorded. The wearing apparel of every householder and that of his family; one bed, bedding and bedstead for every two members of the family; one heating stove in use, and fuel purchased for use, not to exceed twenty dollars, and other household furniture to the value of three hundred dollars; family library to the value of fifty dollars; bibles and school books in use; one hundred dollars' worth of implements, fixtures and tools, necessary to carry on his business; materials and stock in trade which were purchased by him with the intention of conducting his business, and which are necessary to that business, not exceeding the value of one hundred dollars; provisions procured by him for the use of his family to the value of fifty dollars; one pew in church, excepting for pay of same, or any tax assessed on it; rights of tombs and burial which are in use for the dead; one sewing machine, in family use, not to exceed the value of one hundred dollars; shares in a co-operative association up to the value of twenty dollars; the uniform, arms and accoutrements of an officer or soldier in the militia, which the law requires him to keep, the boat and fishing tackle of a fisherman not to exceed in value one hundred dollars, which must be in use by him or with which he is procuring a living

MICHIGAN.

HOMESTEAD to the head of a family, if in a village, to the value of fifteen hundred dollars; if in the country, must not exceed forty acres of ground and the house thereon.

When the property exceeds fifteen hundred dollars in value it may be sold, and after paying the debtor that amount the residue may be taken by the creditor.

Householders cannot sell or incumber their homesteads without the free consent of their wives.

Householders also have exempt the following personal property: household goods and furniture, not exceeding two hundred and fifty dollars in value; the wearing apparel of each member of the family, pew in church, lots in cemetery, and rights of burial; arms and accoutrements, the school books of each member of the family, family library, not exceeding in value one hundred and fifty dollars; all family pictures, two cows, ten sheep and their fleeces, five swine, and provisions and fuel sufficient to keep the householder and his family six months; one yoke of oxen, or in lieu, one horse or one span of horses, vehicle, harness, or other things necessary for the person in carrying on the trade, business or profession in which he is principally engaged, not to exceed in value the sum of two hundred and fifty dollars; a quantity of grain, hay,

feed, etc., to keep the above enumerated animals for six months; one sewing machine in use by family.

The mechanical tools and implements of husbandry are exempt from all executions. No other personal property is exempt from an execution for purchase money.

Where a householder who has his homestead exempt dies, his wife or minor children shall be entitled to the same benefit so long as she or they continue to occupy it as a homestead.

MINNESOTA.

TO EVERY householder a homestead consisting of not exceeding eighty acres of land and a dwelling house thereon, to be selected by the debtor, but must not be included in any town, city or village, or instead, if the debtor should so select, not exceeding one-half acre in any town, city or village where the inhabitants number less than five thousand; if over five thousand inhabitants there must not be to exceed one lot, and the dwelling house thereon and its appurtenances owned and occupied by the debtor as a residence.

If a person entitled to a homestead shall die, his widow or minor children shall have the same benefit during the time they occupy the same.

One seat or pew in place of public worship; one lot in cemetery; family bible, family pictures, school books or library, and musical instruments in use by family; all beds, bedding and bedsteads kept and in use by the debtor and his family, and the wearing apparel of the family; all stoves in use by the debtor and his family; all cooking utensils, and other household furniture not above enumerated, not to exceed in value five hundred dollars; ten swine, three cows, one yoke of oxen, one horse, or in lieu thereof one span of horses or mules; twenty sheep and their fleeces; the necessary food for the above stock for the term of one year, either growing or already provided, or both; one dray, cart or wagon, one drag, two plows, one sleigh, and other farming utensils including necessary harness for team, not to exceed in value three hundred dollars; grain necessary for one year's seed, not exceeding fifteen bushels potatoes, fifty bushels oats, three bushels corn, thirty bushels barley; one sewing machine; one years' provision for debtor and his family, and fuel sufficient for one year; the wages of any laboring man or woman, or of any of their minor children, not exceeding twenty dollars, for any services that may have been rendered ninety days previous to judgment; all instruments and tools of any mechanic, minor or other person, used and kept for the purpose of carrying on his trade, not to exceed the value of four hundred dollars.

Also, above and in addition to the articles already enumerated, where the debtor is an editor, publisher or printer, he is allowed the usual printing outfit, which may consist of presses, type, stones and cases, not to exceed in value two thousand dollars, and not exceeding four hundred dollars of stock in trade.

Any mortgage that is lawfully obtained on the property is not included in this exemption, however, but such mortgage or other alienation of such land by the owner thereof, if he be a married man, shall not be valid without the signature of his wife to the same, unless such mortgage shall be given to secure the payment of the purchase money, or a portion of the same.

This exemption law is not to be so construed as to exempt any property within the state from execution or attachment for the wages of clerks, laborers, or mechanics.

MISSISSIPPI.

TO EVERY person, whether at the head of a family or not, the following personal property: All agricultural implements necessary for a farmer, for two laborers; the books of a student with which to complete his education; the tools of a mechanic necessary to carry on his trade; his wearing apparel; the libraries of the following professional men: preachers, licensed attorneys and physicians; also the instruments of dentists and surgeons, not to exceed in value two hundred and fifty dollars. Teachers of colleges, schools and academies have exempt all globes, maps and books used by them; life insurance policy, the amount of which is not in excess of ten thousand dollars, from debts of deceased. To every householder being a resident of the state, and having a family, male or female, a homestead used as a residence, not to exceed in value two thousand dollars, nor more than one hundred and sixty acres. Where the property is worth more than two thousand dollars, it may be divided, if practicable; if not, it may be sold, and after paying the debtor the remainder is to be paid to the creditor. To a householder the following personal property: one yoke of oxen or one span of horses or mules, two cows and calves, five sheep, five head of hogs, five swine, one hundred and fifty bushels corn, ten bushels wheat or rice, three hundred bundles fodder, two hundred pounds of meat, one wagon or cart not to exceed in value two hundred dollars, one sewing machine, household and kitchen furniture not to exceed one hundred dollars in value, growing crops. Where a householder is a resident of a city, town or village, they are allowed to have personal property exempt to the value of two hundred and fifty dollars, such as they may select, which is in lieu of the foregoing. No exemptions allowed when the debt claimed is for purchase money, or for non-payment of taxes or assessments, or for any materials furnished for the property, nor for any debt for labor on the property.

MISSOURI.

HOUSEKEEPERS or heads of families are allowed to hold exempt from execution or attachment, a homestead, if occupied as a residence, not to exceed in value three thousand dollars, when in cities of over forty thousand inhabitants, and not exceeding in quantity eighteen square rods of ground, in cities of ten thousand and over, but less than forty thousand inhabitants, a homestead not to exceed the value of fifteen hundred dollars, nor more than thirty square rods of ground; in cities of less than ten thousand inhabitants, five acres, not to exceed in value fifteen hundred dollars; in the country, not to exceed one hundred and sixty acres, not to exceed fifteen hundred dollars in value. Where a husband abandons his wife, she may file a claim to the homestead, describing the property, and state that she is the wife of the owner of the land, and in whose name it

is recorded, which claim must be entered on record and must be acknowledged as deeds are, after which no incumbrance on or conveyance of can be made without her consent.

At the death of a householder who was owning a homestead, leaving a widow or minor children surviving him, the homestead goes to them during the widow's lifetime, until the youngest child shall have arrived at age, after which the fee simple of the property, subject to the homestead therein will pass by descent or devise, and can be sold for the descendant's debts as in other cases. Where the descendant, during his lifetime, has placed an incumbrance on his homestead, it may be enforced after his demise.

The following personal property is exempt when owned by a person not at the head of a family: Wearing apparel, the necessary implements and tools of any mechanic while carrying on his trade.

The following personal property is exempt to those who may be at the head of a family. Ten head of choice sheep, and the product thereof in wool, cloth, or yarn; ten head of choice swine; two cows and calves; two plows, one hoe, one axe, and one set of plow gears, and all necessary farm implements for the use of one man, working animals to the value of one hundred and fifty dollars; one loom and apparatus used in manufacturing cloth in a private family, spinning wheels and cards; all the spun yarn, thread and cloths manufactured for family use; any quantity of hemp, flax and wool, not exceeding twenty-five pounds each; all wearing apparel of debtor and family; four beds with necessary bedding, and such other household and kitchen furniture, not exceeding the value of one hundred dollars, as may be necessary for the family, agreeably to an inventory thereof, to be returned on oath with the execution by the officer making the levy; all such provisions as may be on hand not above the value of one hundred dollars; books and bibles belonging to the family; all lettered grave stones and one pew in church; the necessary implements and tools of any mechanic while carrying on his trade. Ministers of the gospel, lawyers and physicians can select such books as may be necessary to their professions in lieu of other property above mentioned, and doctors of medicine, in lieu of above property, can select their medicines.

The property of a non-resident is not exempt, nor that of any person who is about to abscond from the state; nor is any property exempt from seizure and sale for taxes. If a married man should leave the state, his wife may claim the exemption; nor would personal property be exempt as against the purchase money; there is no exemption against a claim for wages of a common laborer or a house servant to the sum of ninety dollars, if suit should be commenced within six months.

NEBRASKA.

A HOMESTEAD to every family, whether the title resides in the husband or wife, consisting of dwelling house used as a residence by the claimant, and the land and appurtenances, not to exceed one hundred and sixty acres, or if within an incorporated city or village a quantity of adjoining land not exceeding two lots; in either case the value must not exceed two thousand dollars.

In case the claimant has no lands, there is then exempt personal property to the value of five hundred dollars. The clothing of the family, supplies sufficient to keep the family for six months, and enough to keep the domestic animals for three months, cooking utensils, household furniture, family bible, family pictures, certain domestic animals, tools, implements of trade, etc., and sixty days' wages to any laboring man, clerk, etc.; provided that there shall be no exemption for wages due to any clerk, mechanic or laborer, or for money due and owing by any attorney at law for money or other valuable consideration received by such attorney for any person or persons. There is no exemption when the execution is for debts secured by a mechanics', laborers' or vendors' liens upon the premises, or on debts secured by mortgage upon the premises executed and acknowledged by both husband and wife, or by an unmarried debtor.

NEVADA.

A HOMESTEAD, to be selected by the husband or wife, or other head of family, not exceeding in value five thousand dollars, and the following personal property, except for incumbrance thereon for debts created for the purchase of the same one horse, harness and vehicle of a physician, surgeon or minister of the gospel, and food necessary to keep the animals one month; one sewing machine in use in debtor's family, not exceeding in value one hundred and fifty dollars; chairs, tables, desks and books worth one hundred dollars; household furniture, etc., and provisions and firewood for one month; the farming utensils of a farmer, and seed provided for planting within the ensuing six months, not to exceed in value two hundred dollars; one span of mules, or one yoke of oxen, two cows, and food for such animals for one month; one wagon or one cart; the implements and tools of a mechanic necessary to carry on his trade; the libraries and instruments necessary to a surveyor, physician, dentist or surgeon; the professional library of an attorney and counselor, or minister of the gospel; the dwelling of a miner not exceeding in value five hundred dollars, and his appliances and tools necessary to carry on his mining operations, not exceeding in value five hundred dollars; and one span of horses, one yoke of oxen, or one span of mules, their harness, and the necessary food for the animals for one month, when they are necessary in his mining operations.

A teamster or other laborer who habitually earns his living with a team has exempt, one span of horses or mules, one yoke of oxen, and their harness, and one wagon or cart.

NEW HAMPSHIRE.

ONE lot in a burying ground, the debtor's interest in one pew in a place of worship; one yoke of oxen, or in lieu thereof, one horse; the necessary beds and bedding for the debtor and family; wearing apparel of the debtor and his family; one cooking stove and its furniture; household furniture to the value of one hundred dollars; bibles and and school books in actual use; one sewing machine; library to the value of two hundred dollars; one hog, one pig, and the pork of the same when slaughtered; one cow; four tons of hay; six sheep and their fleeces; provisions and fuel to the value of fifty dollars; tools of the debtor's occupation to the value of one hundred dollars.

An unmarried person may have exempt, if an owner, a homestead not to exceed in value five hundred dollars; the wife and

children of every one who owns a homestead, or any interest in the same, are entitled to an exemption in the same not to exceed in value five hundred dollars, as against grantees, creditors or heirs of such persons, during the life of the widow and until the children arrive at maturity.

Where a wife owns, in her own right, a homestead at her death, the life estate of the surviving husband, not to exceed in value the sum of five hundred dollars, is exempt to him.

NEW JERSEY.

To every householder having a family there shall be exempt from sale on execution for debt, a homestead, where owned and occupied as a residence by the debtor, to the value of one thousand dollars.

Articles that are exempt are: one bed and bedding, one cradle, one stove, one-half cord of firewood, one-half ton of coal, one table, one spinning-wheel, six chairs, one cow, one hog, one hundred pounds of flour, one cooking-pot; knives, forks, spoons, plates, one dozen each; six bowls, one barrel, two pails, one tub, one coffee-pot, one frying pan, necessary tools of a tradesman to the value of ten dollars, and all necessary wearing apparel.

According to supplementary act of 1858, in all cases of assignments of debtors for the benefit of creditors, goods and chattels to the value of two hundred dollars, and wearing apparel for the debtor and his family, are exempt from forced sale.

NEW YORK.

To a householder having a family there is exempt the lot and buildings occupied, owned and used as a residence by the debtor, not to exceed in value one thousand dollars, but must be recorded in the office of the clerk of the county in which such property is situated, as homestead property.

The property is not exempt from non-payment of taxes or assessments, nor from a debt contracted for the purchase money, nor for any debt contracted previous to the recording the same as homestead property. Property so recorded will continue to be exempt after the demise of the debtor, for the benefit of the widow and family, as long as any of them continue to occupy it as a homestead, until the death of the widow, or until the youngest child reaches maturity.

Married women are allowed the same exemption as householders.

Personal property, working tools and team, professional instruments, household furniture, and library not to exceed in value two hundred and fifty dollars, and food sufficient to keep the team for ninety days. When the debtor supports his family wholly or in part by his labor, his earnings for his personal services for sixty days preceding are also exempt.

NORTH CAROLINA.

Five hundred dollars' worth of personal property, such as the debtor may select, who must be a resident of the state, and a homestead including the dwelling and buildings, not to exceed in value one thousand dollars, to be selected by the debtor. There is no exemption from debts created for the purchase of the homestead, or taxes, laborers' and mechanics' liens. Among certain articles to the value of five hundred dollars that are also exempt may be mentioned one cow and calf, one loom, one bedstead and bedding for every two persons of a family, necessary tools for one laborer, etc.

OHIO.

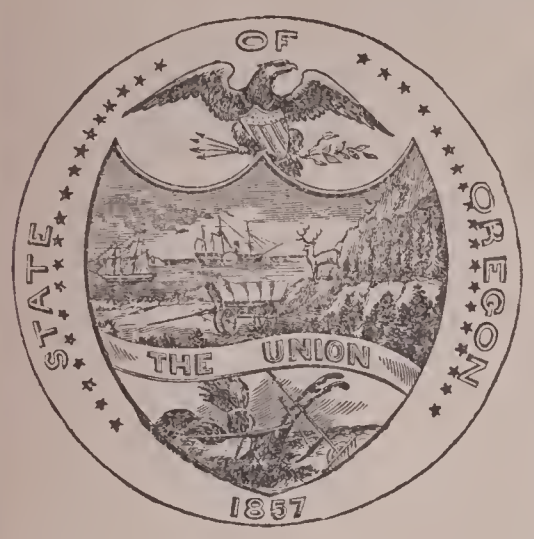
Where the husband and wife are living together, or where a widow or widower is living with an unmarried daughter, or unmarried minor son, have exempt a homestead not exceeding in value one thousand dollars. If the homestead is of a greater value, and cannot, in the opinion of the appraisers be divided without injury, then the plaintiff in execution would be entitled to a yearly rental value of over one hundred dollars, until such time as the debt, costs and interest shall have been paid.

Any resident of the state, being a householder, and not the owner of a homestead, may hold exempt other chattels as he may select to the value of five hundred dollars, which shall be in addition to the amount of other personal property otherwise exempted.

No exemptions allowed on a judgment rendered on any incumbrance on the property which had been made and signed by the debtor and his wife, nor for any claim for labor of less than one hundred dollars, or for a debt created on account of purchase money, nor for a mechanic's lien, nor for material furnished, or labor performed in erecting any buildings on the premises, nor for taxes.

The following personal property is also exempt: The wearing apparel of such family, beds, bedsteads, bedding necessary for the use of the family; two stoves and the necessary pipes, and fuel for sixty days; implements and tools necessary for carrying on his or her trade or business; certain domestic animals, and the necessary food to last them sixty days; or, if the debtor has not these articles, he may select sixty-five dollars' worth of furniture. All family pictures and books; provisions for family use, to the value of fifty dollars; one sewing machine and one knitting machine; and in addition to the above, where the debtor is an expressman or a drayman, he can hold exempt one wagon or dray, one set of harness and one horse; if a farmer, one horse or one yoke of oxen, one wagon, and the necessary gearing for his team; if a physician, his professional books, medical instruments, one horse, one saddle and one bridle, not to exceed in value one hundred dollars.

OREGON.



BOOKS, pictures, and musical instruments owned by any person, to the value of seventy-five dollars; necessary wearing apparel owned by any person, to the value of one hundred dollars; and if such person be a householder, for each member of his family to the value of fifty dollars; the tools, implements, apparatus, team, vehicle, harness, or library necessary to enable any person to carry on the trade, occupation, or profession by which such person habitually earns his living, to the value of four hundred dollars; also a sufficient quantity of fuel to support such team, if any, for sixty days. The word "team," in this subdivision, shall not be construed to include more than one yoke of oxen, or a span of horses or mules, as the case may be.

If a householder owns and keeps in actual, or keeps for use, by and for his family, the following property is also exempt: Ten sheep, with one year's fleece, or the yarn or cloth manufactured therefrom, two cows, and five swine; household goods, furniture, and utensils, to the value of three hundred dollars; also food enough to support such animals, if any, for three months, and provisions actually provided for family use, and necessary for the support of such householder and family for six months; one seat or pew in a house of worship, and occupied by the householder or his family. No exemption when the debt sought to be recovered is for the purchase price or any part thereof.

PENNSYLVANIA.

THERE is exempt from execution, property, either real or personal, not to exceed in value three hundred dollars, in addition to bibles, school books and wearing apparel, when claimed as exempt property by the debtor; the privilege being a personal one, may be waived at any time. The debtor's widow or minor children are entitled to the same sum from his estate, for her or their use.

A seamstress may hold exempt from sale or execution, all sewing machines used in earning a support.

No homestead exemption in this state.

A debtor is not entitled to three hundred dollars from the proceeds of a sale following the seizure of real estate, if he fails to make his choice to retain it. A claim to personal estate, to be effective, must be made before the sale; and where the defendant neglects to enter his claim, he thereby relinquishes all benefits to be had on account of the statute. Where a debtor gives up his right to the exemption by an understanding to that effect with one execution debtor, it is a waiver as to all the other creditors.

Excepted from the operation of the statute are mortgages or other contracts for the purchase money of real estate.

RHODE ISLAND.

THE necessary wearing apparel of a debtor and his family; his necessary working tools not exceeding two hundred dollars in value; household furniture and family stores, if a housekeeper, not exceeding three hundred dollars in value; the bibles, school, and other books in use in his family; one cow, and one and a half tons of hay, of a housekeeper; one hog and one pig, and the pork from the same, of a housekeeper; one pew in a house of worship; a burial lot; mariners' wages until after the termination of the voyage in which same have been earned; debts secured by bills of exchange on negotiable promissory notes, and ten dollars due as the wages of a laborer.

SOUTH CAROLINA.

TO THE head of every family a homestead to the value of one thousand dollars, and the annual product thereof, and personal property not to exceed in value the sum of five hundred dollars. Where a woman has separate property, and is married to the head of a family, who has not a homestead or the wherewith to procure one, she may then be entitled to the same exemption as the head of a family, but the joint of husband and wife in real estate and personal property must not be in excess of one thousand dollars in a homestead and five hundred dollars in personal property; no property is exempt from a levy or sale for taxes, or for obligations incurred for the purchase of the property or any improvements on the same. Homestead right not being a personal one, cannot be waived, nor can it be sold except for the purpose of purchasing another one. The products from the homestead are not exempt from a debt which has been created in their production.

TENNESSEE.

WHILE in the hands of the heads of families the following property is exempt from sale or execution: two beds, bedsteads, and necessary clothing for each, and for each three children an additional bed, bedstead, and clothing, the bedstead not to exceed in value twenty-five dollars; two cows and calves, and if the family consists of six persons or more, three cows and calves; one dozen knives and forks, one dozen plates, half dozen dishes, one set table

spoons, one set teaspoons, one bread tray, two pitchers, one waiter, one coffee-pot, one teapot, one canister, one cream jug, one dozen cups and saucers, one dining table and two table cloths, one dozen chairs, one bureau not to exceed forty dollars in value, one safe or press, one wash basin, one bowl and pitcher, one washing kettle, two washing tubs, one churn, one looking-glass, one chopping-axe, one spinning-wheel, one loom and gear, one pair cotton cards, one pair wool cards, one cooking stove and utensils, or one set of ordinary cooking utensils, one meal sieve, and one wheat sieve, one cradle, one bible and hymn book, and all books used in school, two horses or two mules, or one horse and one mule or one horse or mule and one yoke of oxen, one ox cart, yoke, ring, staple and log-chain, one two or one-horse wagon not to exceed seventy-five dollars in value, and harness, one man's saddle, one woman's saddle, two riding-bridles, twenty-five barrels of corn, twenty bushels of wheat, five hundred bundles of oats, five hundred bundles of fodder, one stack of hay not to exceed twenty dollars in value, and where the family consists of less than six persons, one thousand pounds of pork, slaughtered or on foot, or six hundred pounds of bacon, or where the family consists of more than six persons, then twelve hundred pounds of pork or nine hundred pounds of bacon, and all the poultry on hand, and fowls to the value of twenty-five dollars; six cords of wood, or one hundred bushels of coal, fifty head of sheep, and the fleeces that may be shorn from the same, and twenty-five stands of bees and the product of the same; and to the heads of families, or to a single female who keeps in use from which to earn a living, one sewing machine; one hundred gallons of sorghum molasses, one hundred pounds of soap, fifty pounds of lard, one hundred pounds of flour, fifty pounds of salt, one hundred pounds of beef or mutton, one pound of black pepper, one pound of spice, one pound of ginger, twenty pounds of coffee, fifty pounds of sugar, three bushels of meal, one bushel of dried beans, one bushel of dried peas, fifty bushels of Irish potatoes, fifty bushels of sweet potatoes (when kept for family use, and not for sale or merchandise), ten bushels of turnips, one pair of andirons, one clock, all the canned fruit put up for family use not to exceed twenty dollars in value, twenty bushels of peanuts, three strings of red peppers, two gourds, two punger gourds, a carpet in use by the family not exceeding in value twenty-five dollars, and two hundred bushels of cotton seed; and where the head of the family is a farmer, there is in addition, exempt while in his possession, two plows, two hoes, one grubbing hoe, one cutting knife, one harvest cradle, one set of plow gears, one pitchfork, one rake, three iron wedges, five head of sheep, and ten head of stock hogs. In the hands of each mechanic who is following his trade, he has exempt one set of mechanic's tools, such as would be necessary to his trade, and where such mechanic is at the head of a family, two hundred dollars worth of lumber or material, or products of his labor; also one gun in the possession of every male citizen to the age of eighteen years and upward, and every female who is at the head of a family; to the heads of families, fifty pounds of picked cotton, and twenty-five pounds of wool, and sufficient quantity of upper and sole leather to provide winter shoes for the family.

Where the householder dies, absconds or deserts his family, the property shall be set apart for the use of the wife and family.

No property shall be exempt for distress or sale for taxes, or on a failure or refusal to work on the public roads, or for fines or costs for illegal voting, or for giving away or selling intoxicating liquors on election day, or for carrying concealed or deadly weapons contrary to law.

Also, there is exempt to householders, his or her homestead to the value of one thousand dollars, and consisting of the dwelling house and out buildings, and the land appurtenant thereto. The same shall inure to the benefit of a deceased householders' widow and the minor children, but shall not be exempt from sale on execution for taxes levied on the premises, or for any improvements made thereon. The householder may elect where the homestead shall be set apart, whether residing on the same or not.

TEXAS.

THE homestead of the family, when in the country, not to consist of more than two hundred acres of land, which may or may not be contiguous, or in lieu thereof, any lot or lots in a city, town or village, used as a homestead, and not to exceed in value five thousand dollars at the time of designation, without reference to the value of the improvements thereon. No exemption on homestead from purchase money, taxes due on same, or for work and material used in constructing any improvements thereon.

There is also exempt to every family, all household and kitchen furniture, any lots in a cemetery, all implements of husbandry, all tools and apparatus belonging to any trade or profession, and all books belonging to private or public libraries, family portraits and pictures; five milch cows and calves, two yoke of work oxen, two horses and one wagon, one carriage or buggy, one gun, twenty sheep, twenty hogs, all provision and forage on hand for home consumption, all bridles, saddles and harness necessary for the use of the family. And to every citizen not at the head of a family, one horse, bridle and saddle, all wearing apparel, lot or lots in a cemetery, all tools, apparatus, and books belonging to his trade, profession, or private library.

VERMONT.

A HOMESTEAD to the value of five hundred dollars, suitable apparel, bedding, tools, arms, and articles of household furniture, as may be necessary for upholding life, one sewing machine kept for use, one cow, the best swine, or the meat of one swine, ten sheep and one year's product of said sheep in wool, yarn, or cloth; forage sufficient for keeping not exceeding ten sheep and one cow through the winter, ten cords of fire wood or five tons of coal, twenty bushels of potatoes; such military arms and accoutrements as the debtor is required by law to furnish, all growing crops, ten bushels of grain, one barrel of flour, three swarms of bees and hives together with their produce in honey, two hundred pounds of sugar, and all lettered grave stones, the bible and other books used in a family, one pew or slip in a meeting house or place of religious worship, live poultry not exceeding in value ten dollars, the professional books and instruments of physicians, and the professional books of clergymen and attorneys at law, to the value of two hundred dollars, and also one yoke of oxen or steers, as the debtor may select; two horses kept and used for team work, and such as the debtor may select in lieu of oxen or steers, but not exceeding in value the sum of two hundred dollars, with sufficient forage for keeping the same through the winter; also the pistols, such arms and equipments personally used by any soldier in the service of the United States, and kept by him or his heirs as mementoes of his service; also one two-horse wagon with whiffletrees and neck-yoke,

or one ox-cart, as the debtor may choose; one sled or set of traverse sleds, either for horses or oxen, as the debtor may select; two harnesses, two halters, two chains, one plow, and one ox-yoke, which, with the oxen or steers or horses which the debtor may select for team work shall not exeeed in value two hundred and fifty dollars.

VIRGINIA.

EVERY householder or head of a family may have exempt from levy or distress, in addition to the articles hereafter mentioned, real or personal property not exceeding in value two thousand dollars, such as he may select; the family bible, family pictures, school books, and library for the use of the family, not exceeding one hundred dollars in value; a seat or pew in a place of public worship, a lot in a cemetery, wearing apparel, beds, bedding, stoves, etc., six chairs, and other household furniture and utensils, one horse, one cow, five barrels of corn, five bushels of wheat, two hundred pounds of bacon, three hogs, ten dollars' worth of forage or hay, one cooking stove, one sewing machine, a mechanic's tools, not exceeding in value one hundred dollars. Where the debtor is actually engaged in carrying on agricultural pursuits, he would have exempt one yoke of oxen or span of horses or mules, with two plows and other agricultural implements. This is known as the "poor law exemption," of which there can be no waiver; even a mortgage on any or all of the articles contained in the "poor law exemption" would be held to be void. The law further provides that a deed of the property claimed under the exemption must be recorded. Where the property set apart consists of a homestead exemption it may be incumbered or sold by the joint act of the husband and wife, or if the householder is unmarried, by him alone. When a householder dies before claiming the exemption, the right continues for the benefit of the wife and minor children, during the life of the widow, providing she remains his widow, and until the youngest child shall become of age, after which period it shall be subject to the law of descent, as any other real estate.

There is no exemption on a homestead for any part of the purchase price of the same, or for services rendered by any laborer or mechanic, for lawful claim for any taxes, levies or assessments. for rent accruing.

WEST VIRGINIA.

A HOMESTEAD not to exceed in value one thousand dollars, to a husband or parent, or the minor children of deceased parents; the homestead so set apart must be recorded as exempt property previous to the date of contracting the debt from which the debtor seeks to have his homestead exempted; the homestead is not exempt from taxes due on the same, nor would it be exempt from any debt created for improvements thereon; and there is also, to a husband or parent, or minor children of deceased parents, two hundred dollars' worth of personal property; and to any mechanic, artisan, or laborer, who is a resident of the state, whether a husband or parent or not, he has exempt such tools as are necessary to carry on his business to the value of fifty dollars, but this does not seem to be in addition to other property exempted, as no one person is allowed, in all, to exceed two hundred dollars in personal property.

WISCONSIN.

FAMILY bible, family library and pictures, all beds, bedsteads and bedding in use by the debtor and his family, all wearing apparel of the debtor and his family, all stoves in use, and other household furniture, not enumerated, not exceeding two hundred dollars in value; one gun, rifle, or other fire-arm not exceeding fifty dollars in value; two cows, ten swine, one yoke of oxen and one horse or mule, or in lieu thereof, two horses or two mules; ten sheep, and the wool from the same, either in the fleece or manufactured into cloth or yarn; the necessary food for all the above-named stock for one year's support, either on hand or growing, or both, as the debtor may choose; also one wagon, cart or dray, one sleigh, one plow, one drag, and other farming utensils, including tackle for teams, not exceeding fifty dollars in value; provisions for debtor and his family sufficient for one year's support, either on hand or growing, or both, and necessary fuel for one year.

The tools and implements, or stock in trade, of any mechanic, miner, or other person, used and kept for the purpose of carrying on his trade or business, not exceeding two hundred dollars in value; the library and implements of any professional man, not exceeding in value two hundred dollars; one sewing machine for family; all inventions from debts against the inventor; the earnings of all persons for three months next preceding the issue of execution, attachments, etc., and five hundred dollars in money or other property, in case debtor has no homestead; all money arising from insurance on any exempt property, which has been destroyed by fire, including policies on the homestead; all moneys coming from a life insurance policy on the life of any person, made for the benefit of a married woman, are exempt from the debts of the insured, and shall be paid to such married woman or her heirs; fifteen hundred dollars worth of printing material, presses, etc.; papers, plates, maps, and books kept for making abstracts of title, when the annual receipts do not exceed one thousand dollars: excess over such amount is not exempt.

The debtor has the right to make all selections under exemption laws. A homestead consisting of not over forty acres of land, used for agricultural purposes, including dwelling-house thereon, and all appurtenances, to be selected by the owner, or instead, not exceeding one-fourth of an acre within any town plot, city, or village, including a dwelling-house thereon.

This exemption does not effect laborers' or mechanics' liens, or extend to any incumbrances which have been properly and legally entered into.

Private property is exempt from seizure to pay municipal indebtedness, with the exception of debts contracted before a provision made in 1872. Personal property is not exempt where there is indebtedness on account of its purchase price.

DICTIONARY OF MERCANTILE and LEGAL TERMS.

Abandonment. Surrender of a ship or merchandise insured, to the insurer.

Abatement. A rejection of a suit on account of some fault either in the matter or proceeding; discount allowed for damage done to merchandise, or for other causes.

Abstract. A summary of a deed or document.

Acceptance. An agreement to pay the contents of a bill.

Accommodation. A bill of exchange accepted by an individual for the convenience of the drawer, with whom it rests to take it up at maturity.

Account. A concise record of the business transactions of merchants or others. "Fictitious accounts," in book-keeping, such as are made out to show the merchant's gains and losses, under the heads charges, profit and loss, balance, etc. "Real accounts," statements made out to show the merchant where, how, and in what proportions his property is invested, under such heads as cash, merchandise, bills receivable, and the like.

Account Current. One that is running, or unsettled.

Accountant. A person skilled in mercantile accounts.

Acknowledgment. An avowal of one's own act, to give it validity.

Acquittance. A written discharge for a sum of money that has been paid.

Action at law. A right of prosecuting to judgment, in a court of law, a claim for a debt, for damages, for an injury sustained, or a wrong done, or to obtain possession of what the right owner is deprived of.

Actuary. The manager of a joint-stock company under a board of directors, particularly an insurance company; also a person skilled in the doctrine of life annuities and insurances.

Adjustment. In marine insurance, the ascertainment of the exact amount of indemnity to which the insured is entitled under the policy, when all deductions and proper allowances have been made.

Admeasurement. A writ against those who usurp more than their own share, as the admeasurement of pasture, or of dower.

Administration. The management of the affairs of minors, lunatics, etc.

Administrator. A person to whom the estate and effects of an intestate are committed, for which he is to be accountable when required.

Adulteration. The introduction of cheap and often injurious materials into natural and manufactured products.

Ad Valorem. According to the value; a term used for those duties or customs which are paid according to the value of the goods.

Advance. In commerce, money paid before goods are delivered, work done, or any consideration given.

Adventure, Bill of. A writing signed by one who receives merchandise on board of his ship wholly at the risk of the owner.

Advice. In commerce, is information respecting trade communicated by letter.

Affidavit. A statement, in writing, of facts for the information of a court in a cause or matter pending, or about to be commenced therein. A counter affidavit is one made in opposition to an affidavit.

Affirmation. Signifies the ratifying or confirming a former law or judgment.

Affreightment. An act or agreement by which a ship is hired for the transportation of goods.

Agent. One who conducts the affairs, or is intrusted with the commission of another.

Agio. A term used to express the difference between the value of metallic and paper money in a country, or between the metallic moneys of different countries.

Agreement. Is where a promise is made on one side, and assented to on the other.

Allonge. A paper annexed to a bill of exchange or promissory note, on which to write indorsements for which there is no room on the bill itself.

Allowance. A deduction from the gross weight of goods. See Tare.

Answer. In law, is a pleading or reply, whereby an allegation in a bill of complaint in chancery, or inquiries arising thereout, or in a libel or articles in the ecclesiastical and other civil courts, is or are replied to or rebutted.

Appeal. Is the removal of a complaint of an inferior to a superior court, being in the nature of a writ of error. "Appellant," or "appellor," one who makes or brings an appeal.

Appraising. Is the valuing or setting a price on goods, An appraiser is one sworn to value goods fairly.

Apprentice. A young person bound by indentures or articles of agreement to a tradesman, or artificer, to learn his trade or mystery.

Arbitration. A mode of deciding controversies by means of arbiters or arbitrators.

Article. In law, the clause or condition in a covenant.

Arrest. The apprehending and restraining a man's person in order to compel him to be obedient to the law. This, in all cases except treason, felony, or breach of the peace, must be done by the lawful warrant of some court of record or officer of justice. Arrest of judgment is the staying of judgment, or not proceeding to judgment.

Assessor. One who assesses public taxes, by rating every person according to his estate.

Assets. The stock in trade and entire property of a merchant or a trading association; goods or estate of a deceased person, subject to the payment of his debts; the property of an insolvent debtor.

Assignee. One who is assigned or appointed by another to do any act or perform any business; also, one who takes any right, title, or interest in property, by an assignment from an assignor, or by act of the law.

Assignor. One who makes an assignment.

Assignment. A transfer or making over to another the right one has in any estate.

Association. A union of persons or a society formed for mutual assistance, or for the joint carrying out of some definite object.

Assumpsit. A voluntary promise by which a man binds himself to pay anything to another, or to do any work.

Attachment. A process that issues at the discretion of the judges of a court of record against a person, for some contempt, either actual or by disobeying its order, for which he is committed.

Attainder. The immediate consequence when sentence of death is pronounced. The criminal is then called attaint, attinctus, stained, or blackened, having no longer any credit or reputation.

Attestation. Of a deed, will, or other instrument, is the execution of it in the presence of witnesses.

Attorney. One who is legally appointed to act for another.

Auction. A public sale of goods by persons called auctioneers, who are licensed to dispose of goods to the highest bidder.

Audit. To examine, vouch, and certify the correctness of the accounts of a public company or body.

Authentication. The giving of authority by proper or legal formalities.

Average. In shipping, a contribution to a loss suffered by one of a number for the general benefit.

Balance. In book-keeping, to adjust and settle, as an account. "Balance-sheet," a condensed statement of a merchant's assets and liabilities, drawn up in order to show the state of his affairs.

Bail. Signifies the delivery of a man out of custody, upon the undertaking of one or more persons for him that he shall appear at a day limited, to answer and be justified by the law.

Bailiff. A subordinate magistrate or officer appointed within a particular province or district. Sheriffs' bailiffs are officers appointed by the sheriff to execute writs.

Bailment. The delivery of goods in trust upon a contract, expressed or implied.

Balance of Trade. In commerce, the aggregate amount of a nation's exports and imports, or the balance of the trade of one nation with another.

Bale. A quantity of merchandise packed up in a cloth.

Ballast. In maritime affairs, a certain portion of iron, stone, gravel, or such weighty material, placed in the bottom of a ship when she has either no cargo, or too little to bring her sufficiently low in the water.

Bank. An establishment for the receiving of moneys and letting them out on interest. Banks are generally formed by a number of moneyed persons, who, for carrying on the business of negotiating bills of exchange, and dealing in bullion, etc., advance a considerable sum as a joint capital.

Bankrupt. A trader who fails or breaks, so as to be unable to carry on his business or pay his debts.

Bargain and Sale. An instrument whereby the property of lands and tenements is, for valuable consideration, transferred from one person to another.

Baillwick. The county or district in which a bailiff or deputy sheriff has jurisdiction.

Barter. Is the exchanging of one commodity directly for another, without the employment of money or any other medium of exchange. A system of barter can only exist in the earliest commercial state of a people.

Bazar. In eastern countries, a market-place, either open or covered, where goods are exposed for sale, and where merchants meet for the transaction of business.

Bequest. See Devise.

Bill. In law, a declaration in writing expressing any grievance or wrong which one person has suffered from another.

Bill Book. In book-keeping, contains in one part an account of all the "bills receivable,"—*i. e.*, bills of which he is to receive payment; and in another an account of all "bills payable,"—*i. e.*, those that have to be paid. It contains a statement of the dates, amounts, when due, and other particulars of the several bills. See Ledger.

Bill of Entry. A written statement of goods entered at the custom-house.

Bill of Exchange. A note containing an order for the payment of a sum of money, to a person called the drawer, who, when he has signed it with his name, and written the word accepted, he is called the acceptor.

Bill of Lading, or Invoice. A deed signed by the master of a ship, by which he acknowledges the receipt of the merchant's goods, and obliges himself to deliver them at the place to which they are consigned.

Bill of Parcels. A tradesman's account of goods sold and delivered.

Bill of Sale. An instrument for the conveyance or transfer of goods and chattels.

Board of Trade. A body of business men to promote commercial interests.

Bona Fide. With good faith; without fraud or subterfuge.

Bond. An obligation or covenant in writing to pay any sum, or perform any contract.

Bonus. An extra payment for a service rendered or a thing received.

Book-keeper. One who has charge of the books and keeps the accounts in any office.

Bottomry. A contract by which the owner of a ship pledges the keel or bottom of the ship as a security for repayment of money advanced.

Broker. One who concludes bargains or contracts for merchants, as exchange brokers, ship brokers, mining brokers, etc. "Brokerage," is that which is paid to a broker for his trouble.

Bullion. Properly signifies uncoined gold and silver, or, more strictly, refined gold and silver in bars or other masses; but in political economy the term is frequently used to denote the precious metals both coined and uncoined.

By Law. A private law made within some particular place or jurisdiction.

Cable. A sea term for a strong rope, which serves to keep a ship at anchor.

Capias ad Respondendum. A writ to arrest a defendant who is about to abscond, and keep him to answer the plaintiff in action. "Capias ad satisfaciendum," is issued on a judgment obtained in an action against the defendant, to satisfy the judgment.

Capital. In commerce, the accumulated stock of every description or fund with which a merchant or manufacturer carries on his business.

Carat, or Karat. Signifies the twenty-fourth part of the weight of any piece of gold or alloy of gold. Thus, if the piece weighed is all gold, it is said to be twenty-four carat gold; if only half of it is gold, it is said to be twelve carat gold, and so on.

Cargo. A general name for all the goods and merchandise carried on board a trading vessel.

Carriers. All persons carrying goods for hire.

Cash. Ready money, distinguished from bills.

Cash Book. A book in which is kept an account of all the cash received and paid, and of the discount received and allowed. "Cashier," one who has charge of cash.

Charter Party. A contract between a ship-owner and a freighter, by which the entire vessel is used for carrying goods at a freight or reward agreed upon.

Circuits. In England, certain divisions of the kingdom, through which the judges pass to hold courts and administer justice. A similar division exists in the United States in respect to the national court.

Citizen. One who participates in the judicial and legislative power in a state. Commonly the term citizen is employed to denote the inhabitant of a town.

Civil. That which relates to the community, or to the policy and government of the citizens and subjects of a state. "Civil law," otherwise called imperial law,—the law of the Roman empire, digested from the laws of the republic and those of the emperors, and adopted by most of the nations of Europe. "Civil service," is applied to that department of the government service that is neither naval nor military.

Code. In jurisprudence, is applied to a compilation of laws made by public authority.

Codicil. A supplement to a will.

Cognizance. The hearing of a thing judicially; also the acknowledgment of a fine.

Collateral. In law, a term for what is side-ways, or not direct, as collateral kinsmen, those who are not descended from one common stock, as the issue of two sons, who are collateral kinsmen to each other.

Collateral Security. Is where a deed is made of other lands or property beside those granted by the principal mortgage or other security.

Collator. One who compares copies or manuscripts.

Commission. In law, the warrant, or letters patent by which one is authorized to exercise jurisdiction; in military affairs, the warrant of authority by which one holds any post in the army; in commerce, the order by which any one traffics or negotiates for another; also the per centage given to factors and agents for transacting the business of others.

Committee. A certain number of persons elected or appointed from a more numerous body to perform some special act or investigation.

Common. In law, a right or privilege claimed by one or more persons in another man's lands, waters, woods, etc. "Common law," the law of the realm grounded on general customs or immemorial usage. In general the common law of England is common in this country.

Commutation. The substitution of one punishment for another.

Company. An association of merchants, mechanics, or other traders, joined together for one common interest.

Composition. In commercial affairs, an agreement entered into between an insolvent debtor and his creditor, by which the latter accepts a part of the debt, in compensation for the whole.

Compound. Where the debtor, not being able to pay all his debts, agrees with his creditors to pay a part.

Compromise. A settlement of differences between parties by a mutual promise or willingness to refer the matter in dispute to the decision of arbitrators.

Consignee. One to whom goods are delivered in trust. "Consignment," the sending or delivering over of goods to another person.

Consignor. One who sends or delivers goods.

Consols. Are English stocks known as consolidated annuities, which pay three per cent per annum. (*Note.*—The British government, during the process of borrowing the money which now forms the national debt, laid itself under certain special conditions; these conditions generally consisted in an undertaking to pay an annuity of so much per cent; on account of complication and confusion from the number of stocks thus formed, the consolidated annuities act was passed, and an average of the value of the different stocks was struck, and the whole consolidated into one fund, kept in one account at the Bank of England.)

Constable. An inferior officer of justice; town or city officer of the peace.

Contraband. Goods prohibited by law to be exported or imported.

Contract. A covenant or agreement between two or more persons, with a lawful consideration or cause.

Conveyance. A writing sealed and delivered, whereby the property in lands and tenements is conveyed from one person to another.

Coroner. An officer whose particular duty it is to make inquisition into the untimely death of any person: this must be done by jury, usually where the body is.

Costs. The expenses attending a law suit, which are in part recoverable from the party who loses the cause.

Coupon. Any check or other piece of paper cut off from its counterpart; a certificate of interest.

Court Martial. See Military Law.

Credit. The lending of wealth or capital by one individual to another, the lender being said to give, and the borrower to get or receive credit.

Currency. The circulating medium of a country, that by which sales and purchases are effected without having recourse to barter.

Customs Duties. Are duties charged upon commodities on their being imported into, or exported from a country.

Damage. In law, signifies, generally, any hurt or hindrance which a man receives in his estate.

Day Book. Sometimes called invoice-book outward, is a subsidiary book in book-keeping, in which is entered a daily account of all the goods sold on credit, with the prices and the names of the purchasers. See Ledger.

Days of Grace. In general, three days allowed for the payment of a bill beyond the time marked on the face of it.

Debenture. A custom-house certificate, authorizing the exporter of certain classes of goods to receive the amount of drawback to which he is entitled upon the goods.

Debit. Money due for goods sold on credit or for services rendered; the word is generally entered on the left-hand page of the ledger.

Debtor. One who owes a debt to another. "Creditor," the person to whom a debt is due.

Deed. A written contract, signed, sealed, and delivered, particularly applied to instruments for conveying land.

De facto. Is applied to actual possession, and *de jure* to right.

Defaulter. One who fails to deliver funds or valuables which he had charge of.

Delivery. The surrender of funds or goods from one to another.

Demise. A term applied to the conveyance of an estate, either in fee, or for life, or years.

Demurrage. Denotes the detention of a ship by a merchant, in loading or unloading, beyond the time specified in the charter party, or other agreement with the owners.

Demurrer. A pause or stop in a suit upon some difficulty.

Deposit. A sum of money which one puts in the hands of another as security for the fulfilment of an agreement, or as a part payment in advance; also money left at a bank.

Deponent. One who gives information on oath before a magistrate.

Deposition. The testimony of a witness taken upon oath.

Derelict. A term applied to such goods as are thrown away or relinquished by the owner, as a ship voluntarily abandoned at sea.

Dernier. Last, as a tribunal of dernier resort, the last or highest court of appeal.

Devise. The act whereby a testator conveys his lands by will, the conveyance of personal property being commonly termed a bequest.

Deviation. A departure of a vessel from its regular course.

Diplomacy. The art of conducting the official intercourse of separate states, and particularly of negotiating treaties.

Discount. An allowance made on a bill, or any other debt not yet become due, in consideration of present payment.

Dividend. The share of profit in a joint stock.

Document. Any written instrument produced in proof of any fact asserted.

Domicile. A place of residence; a place "where one has placed his hearth and centered his fortunes."

Double Entry. In book-keeping, is so-called from each item being entered twice in the ledger, being debited to one set of accounts and credited to another. By entering each transaction on both sides of the ledger, a system of checks is established, inasmuch as the entries on the credit side must be equal to the entries on the debit side, otherwise the books will not balance. See Ledger.

Draft. A bill or order drawn by one person upon another for a sum of money; a bill of exchange.

Drawee. A person on whom an order or bill is drawn.

Drawer. A person who draws an order or bill for payment.

Drawback. An allowance made to merchants on the exportation of goods which paid duty inward.

Duplicate. A copy of a manuscript.

Duress. An unlawful imprisonment or confinement in any wise.

Duty. That which is paid or due, by way of custom on merchandise in general.

Earnest. Something given in order to bind a bargain.

Easement. A privilege or advantage, without material gain, which one owner has in the land or estate of another owner distinct from the ownership of the land; as, a way, watercourse, etc.

Effects. The movables or goods of any merchant, tradesman, etc.

Embargo. A prohibition issued by authority on all shipping not to leave any port.

Embezzlement. The fraudulent appropriation by clerks, servants, or others, of money or goods intrusted to their care, or received by them on account of their employers.

Emporium. A common resort of merchants for trade.

Encroachment. An unlawful gaining upon the rights and possessions of another.

Enfranchisement. The making a person a denizen, or free citizen.

Entry. The taking possession of lands and tenements by one who has title of entry; in commerce, the act of setting down in merchants' account books the details of trade.

Equity. A correction of the common law wherein it is deficient.

Estate. The title or interest which one has in lands, tenements, or hereditaments.

Evidence. That which tends to prove or disprove any matter of fact, the truth of which is submitted to judicial investigation.

Excise duties. Inland taxes on commodities of general consumption.

Execution. A judicial writ granted on the judgment of the court whence it issues.

Executor. One appointed by a testator to see that his will is executed. "Executrix," a woman executor.

Ex officio. A term applied to an act done by a person by reason of his office.

Ex parte. On one side; as ex parte statements, a partial statement, or that which is made on one side only.

Exports. Goods exported or sent out of one's own country to a foreign land.

Ex post facto. Literally, from something done afterward, as an ex post facto law, a law which operates upon a subject not liable to it at the time the law was made.

Extension. An allowance of further time in which to pay a debt.

Fabric. The same as manufacture; lace of the fabric of Brussels, etc.

Fac simile. An exact imitation of an original in all its traits and peculiarities, a copy as accurate as possible.

Factor. Same as Agent, which see.

Faculty. In law, a dispensation or privilege.

Factotum. One who can turn his hand to anything; a man of all work.

Failure. A lack of means; insolvency; misfortune in business.

Fall. A decline or depreciation in price or value.

False pretences. Any untrue statements made with the intent to obtain money, chattels, or valuable security.

Fee. An estate of inheritance, or the interest which one has in land or some other immovable: things called a fee simple when it is unconditional, and a fee tail, when limited to certain heirs according to the will of the first donor.

Felony. In common law, any crime which incurs the forfeiture of lands or goods, and to which capital or other punishment is superadded, according to the degree of guilt.

Feme coverte. A married woman. "Feme sole," a single woman.

Feræ naturæ. A term applied in law to wild animals.

Fiat. A decree; an effective command.

Fiction of Law. Is a supposition of law that a thing is true, without inquiring whether it be so or not, that it may have the effect of truth so far as is consistent with equity. "These fictions of law," says Blackstone, "though at first they may startle the student, he will find, upon further consideration, to be highly beneficial and useful; especially as this maxim is ever invariably observed, that no fiction shall extend to work an injury; its proper operation being to prevent a mischief, or remedy an inconvenience that might result from the general rule of law."

Finance. Treasure or revenue of the country. "Financier," an officer who manages the finances of the country.

Fine. A penalty or amends made in money for an offense.

Firm. The persons who compose a company for the transaction of business.

Firman. A passport granted in Turkey and India for the liberty of trade.

Fiscal. Pertaining to the public treasury or revenue.

Foreclose. Is the process by which a mortgager is deprived, or foreclosed, of his right of redeeming the mortgaged estate.

Foreign Attachment. An attachment of foreigners' goods.

Forfeiture. The loss of goods, lands, or employments, etc., for neglecting to do one's duty, or for some crime committed.

Folio. A sheet folded once, or two pages to a form.

Forgery. The fraudulent making or altering any record, deed, or writing, etc., to the prejudice of another person's rights, particularly the counterfeiting the signature of another with intent to defraud.

Freehold. That land or tenement which a man holds in fee simple, fee tail, or for term of life.

Free Trade. Free and unrestricted trade between the people of different countries, without government duties.

Freight. The sum agreed to be paid for the burden of a ship or load of a car; also the cargo itself.

Fund. The capital or stock of a public company. "Funds," "Public Funds," or "Stocks," are the different capitals into which the national debt is formed, and upon which interest is payable.

Gaging. The method of measuring the number of gallons contained in vessels intended to hold goods; chiefly casks, barrels, vats, etc.

Garnishment. A warning or notice given to a party not to pay money, etc., to a defendant, but to appear and answer to a plaintiff-creditor's suit.

Gift. A conveyance which passeth either lands or goods; a transfer of anything without a valuable consideration.

Goods. The valuables of which one is possessed; merchandise.

Government. The power in a state by which the whole is governed; if this power be in the hands of one it is a monarchy; if in the hands of the nobility, an aristocracy; and if in the hands of the people, or those chosen by them, a democracy. The executive government is the power of administering public affairs.

Grand Jury. The jury which finds bills of indictment against offenders, who are afterward tried before a petit jury, in case the former find a true bill against the party accused. The grand jury is composed of twenty-four persons.

Grant. A gift in writing of such things as cannot conveniently be passed, or conveyed by word of mouth.

Gross Weight. The weight of goods together with the cask or vessel.

Guaranty. A promise or undertaking to be responsible for the debts or duties of a third party, in the event of his failing to fulfil his engagement.

Guardian. One who has charge of a person committed to him; as the guardian of an infant, who sees to his education and manages his affairs.

Habeas Corpus. A writ for delivering a person from imprisonment, and by which, in the United States, a man in prison may claim an immediate trial, or examination.

Handwriting. In law, is, in general, proved by a witness who has seen the person write; the mark of a person who cannot write is proved by a person who has seen him make his mark and is acquainted with it.

Hawker. A person going from place to place selling goods and merchandise.

Heir. One who succeeds by descent to lands and tenements.

Hereditaments. Are immovables, which one may have to him and his heirs.

Highway. A public or free passage for the people.

Homicide. The killing of any human being; homicide is of three kinds, justifiable, excusable, and felonious,—the first has no stain of guilt, the second very little, but the third is the highest crime that one is capable of committing against a fellow-creature.

Hotel. A large inn for the reception of strangers.

House. A business establishment.

Hypothecate. To pledge property as security.

Ibidem. In the same place; contracted ibid.

Imitation. To make a copy or counterfeit of something.

Impanel. To make a list of names of jurors.

Impeachment. A calling to account of a public officer for misdemeanor or maladministration.

Implements. Instruments, tools, vessels, etc.

Implication. Something inferred, without being expressed directly in words.

Import. To bring goods from a foreign state or country.

Impost. A tax or duty imposed on goods imported from abroad.

Income. The gains of labor or investments.

Indemnity. The making good, or compensating for any loss.

Indenture. A writing containing a contract, originally so called from the two copies being indented to show their connecting correspondence with each other.

Indictment. A written accusation of one or more persons, of a crime or misdemeanor, preferred to, and presented upon oath by, a grand jury.

Indorse. To write on the back of a bill of exchange or check.

Infant. A person under twenty-one years of age.

Information. An accusation, or complaint, against a defendant for some criminal offense. "Informer," one who gives information, particularly private information, to a magistrate.

Inheritance. A perpetual or continuing right to an estate invested in a person and his heirs.

Injunction. A writ which issues under the seal of a court of equity, in order to restrain proceedings in other courts, etc.

Injury. Denotes something done contrary to law to the hurt of another person or his property.

Inquest. An inquiry into any cause, civil or criminal, by jurors impaneled for that purpose.

Inquiry, Writ of. Is a judicial process addressed to the sheriff of the county in which the venue is laid, to summon a jury, in order to inquire what damages a plaintiff has sustained in an action upon the case where judgment goes by default.

Insolvency. The state of a person who has not sufficient property for the full payment of his debts.

Instrument. A deed or writing drawn up between two parties, and containing several covenants agreed between them.

Insurance, or Assurance. Is a contract between two parties, in which one of them, the insurer, undertakes, in consideration of a certain sum received or promised, called the premium, to indemnify, or assure, the other against a certain amount of loss from the occurrence of a specified contingency, as the burning of certain premises, the loss of a certain ship, or the death of a certain person.

Interest. Money paid for the use or loan of money; the sum lent is called the principal, the sum paid by the borrower the interest, the interest paid upon that is called compound interest, or interest upon interest.

Interpleader. A proceeding in a suit where a person owes a debt or rent to one of the parties, but, till the determination of it, he does not know to which.

Interrogatories. Questions in writing demanded of witnesses in a cause, particularly in the court of chancery.

Intestacy. Denotes the dying without having made a will.

Intrusion. A violent or unlawful seizing upon lands or tenements.

Issue. Children begotten between a man and his wife; profits arising from lands, tenements, fines, etc.; the point of matter at issue between contending parties in a suit.

Investment. The use of money in the purchase of property, generally of a durable kind.

Invoice. A list or account of goods or merchandise sent by merchants to their correspondents, giving the quantity, value, etc., of the several articles.

Invoice Book. In book-keeping, called, sometimes, the credit day book, contains an account of all goods bought on credit, with the name of the seller and the amount. See Ledger.

Jetsam. Anything thrown out of a ship being in danger of a wreck and cast on shore.

Joint Stock. A stock or fund, formed by the union of several shares from different persons. "Joint stock companies" are a kind of partnership entered into by a number of individuals for the purpose of carrying on some trade or business with a view to individual profit.

Joint Tenancy. Signifies the joint ownership of two or more persons in land or other property.

Jointure. A settlement of lands and tenements made over by the husband to the wife, to be enjoyed after his decease.

Journal. In book-keeping, an intermediate book to facilitate the posting of the ledger.

Judge. Is one invested with authority to try any cause or question in a court of judicature, and to pronounce sentence or judgment thereon.

Judgment. Is the sentence pronounced by a court of law upon the matter contained in the record.

Judicial. An epithet for what pertains to a court, as judicial decisions, etc.

Jurisdiction. Power or authority invested in any individual or court, of doing justice in the causes brought before them.

Jurisprudence. Science of right, or of positive law; general jurisprudence is the science or philosophy of positive law, and investigates the principles which are common to all positive systems, apart from the local, partial, and accidental circumstances and peculiarities by which these systems respectively are distinguished from one another. Particular jurisprudence treats of the laws of particular states; which laws are, or at least profess to be, the rules and principles of universal jurisprudence itself specifically developed and applied.

Jury. A number of men duly authorized to inquire into or determine certain facts, and bound by oath to a faithful discharge of their duty. Juries are of different kinds, as the grand jury (which see); petit jury, consisting of twelve men, chosen to try all causes, civil and criminal—in the latter causes they give a verdict of guilty, or not guilty; in civil causes they bring in a verdict either for the plaintiff or the defendant; and in real actions, either for the demandant or tenant. A jury is called special, when it is returned for a particular cause, and common when it is returned by the sheriff in the same panel, to try every cause at the same court. See Coroner.

Justice of the Peace. An officer elected to keep the peace within a certain district.

Justification. Denotes a judicial act, the declaring or pronouncing a person just or righteous according to law; it is used either in a legal or theological sense.

Kidnapping. The forcible taking away a man, woman, or child, in order to carry them abroad, —an offense at common law, and punishable by fine, imprisonment, etc.

Kindred. Persons of the same blood or descent.

Label. A printed slip for indicating the contents of anything to which it is affixed; also, a slip fastened to deeds or writings, or any paper joined by way of addition to a will.

Landlord and Tenant. One of the common relationships of social life, out of which arise many rights, duties, liabilities, and remedies.

Landmark. An object to ascertain the boundaries of an estate or property.

Lapse. A slip or omission of a patron to present a clergyman to a benefice in his gift within six months after its vacancy, in which case the benefice lapses to the bishop. A lapsed legacy, is where the legatee dies before the testator, or where a legacy is given upon a future contingency, and the legatee dies before the contingency happens.

Larceny. Another term for theft, which is divided into two kinds—simple larceny, or plain theft, when it is unaccompanied with any aggravating circumstances; and mixed, or compound larceny, when accompanied by circumstances which are considered as aggravating the offense.

Law. In its broad signification, denotes a rule of action, and is applied indiscriminately to all kinds of action, whether animate or inanimate, rational or irrational. Thus we speak of the laws of motion or of gravitation, as well as that of nature and of nations. In a more restricted sense, it is applied, not to rules of action in general, but of human action or conduct. Laws are of various kinds, as the law of nations, civil law, municipal law, etc. See Fiction of Law, and Municipal Law.

Law of England. Is divided into written or statute law, and unwritten or common law.

Law of Exception. In political affairs, is applied to those extraordinary measures that are sometimes necessary to be adopted when the situation of a state is so critical that the ordinary powers and laws are no longer considered sufficient.

Law of Nations, or International Law. Is defined "as consisting of those rules of conduct which reason deduces as consonant to justice from the nature of society existing among independent nations, with such modifications and deviations as may be established by general consent."

Lease. A conveyance of lands, generally in consideration of rent or other annual recompense, for term of years, for life, or at will, provided it be for a shorter term than the lessor has in the premises.

Ledger. The principal book of accounts in a business. It contains an abstract of the entries scattered through the various subsidiary books, all arranged methodically under the names of the different persons standing in the relation of debtors or creditors to the merchant. Two sets of columns are assigned to each account, one for Dr., the other for Cr. See Accounts, Double Entry, Day Book, Invoice Book, Bill Book, Balance and Balance Sheet.

Legacy. A bequest or gift by testament of any personal effects; the person bequeathing is called the testator, and he to whom it is bequeathed the legatee.

Legislation. Is the making of law.

Legitimacy. A child born in lawful wedlock.

Letter. Any writing sent from one person to another. "Letter of advice," a writing by a merchant to his correspondent, advising or giving him notice of what bills he has drawn upon him. "Letter of attorney," a writing whereby a person constitutes another to do a lawful act in his stead, as to receive debts, etc. "Letter of credit," a writing by one merchant to another, desiring him to credit the bearer with a certain sum of money.

Liabilities. The debts which a person or company owes, as distinguished from resources.

Libel. Is a malicious defamation of any person, made public by either printing, writing, signs, or pictures, in order to provoke him to wrath or expose him to public hatred, contempt, and ridicule. See Slander.

License. A power or authority given to one to do a lawful act, as to carry on certain trades or professions, to marry, etc.

Lien. A legal claim; the right by which the possessor of property holds it against the owner in satisfaction of a demand.

Life Estate. An estate that a possessor holds during life.

Life Rent. A rent that a man receives for a term of life, or for the sustentation of it.

Ligan. A wreck consisting of goods sunk in the sea, but tied to a cork or buoy in order to be found again.

Limitation. A certain time prescribed by statute, within which an action must be brought.

Liquidation. Paying up debts.

Loan. A contract by which the use of anything is given under condition of its being returned to the owner.

Magistrate. A public civil officer vested with the executive government, or some branch of it. Subordinate magistrates are principally sheriffs, coroners, justices of the peace, constables, surveyors of highways, and guardians and overseers of the poor.

Mainprize. The taking or receiving of a person into friendly custody, who might otherwise be committed to prison, upon security given that he shall be forthcoming at a time and place assigned.

Maintenance. The wrongful upholding another in a cause.

Malice. A formed design of doing mischief to another. In murder, it is malice makes the crime. Malice prepense is either express or implied; express, when the design is evidenced by external circumstances, or even if, upon a sudden provocation, one beats another in a cruel and unusual manner, so that he dies, even though he did not intend his death; implied, as where a man wilfully poisons another, or a man kills another suddenly without any, or without a considerable provocation. In general, all homicide is malicious, and thus murder; unless justified by command or permission of the law, excused on account of accident or self-preservation, or alleviated into manslaughter by extenuating circumstances, the burden of proving any of these to the satisfaction of the court and jury being incumbent upon the prisoner.

Mandamus. A writ originally granted by the king, so-called from the first word, mandamus, we command, commanding corporations and inferior courts, or other persons, to do some particular thing, as to admit any one to an office, and the like.

Manifest. The draught of the cargo of a ship.

Manslaughter. The killing a man by misadventure without malice prepense. See Malice.

Manual, Sign. The signing of a deed or writing, under hand and seal.

Manufacture. Any commodity made by the hand, or anything formed from the raw materials or natural productions of a country, as cloths from wool, and cotton or silk goods from the cotton and silk, etc.

Manumission. The act of enfranchising, or setting a slave or bondman free.

Marine Law. As a branch of international law, is that collection of principles and usages that pertains to the rights, duties, and obligations of nations with respect to the sea.

Marshal. A person who regulates the ceremonies on certain occasions.

Martial Law. Sometimes called drum-head law, is often confounded with military law, but the terms are by no means synonymous. Martial law is the just but arbitrary power and pleasure of the king, or those in authority, and who are bound to guard against dangers in time of extreme peril to the state; the adoption and execution of extraordinary measures when the general safety cannot be trusted to the ordinary administration.

Master. One who is intrusted with the care and navigation of a ship. "Mate" is an assistant officer on board a vessel.

Matron. A married woman of experience, who is in certain cases empaneled upon juries.

Maxima and Minima. Terms employed not to signify the absolute greatest and least (as the words imply) values of a variable quantity, but the values it has on the instant when it ceases to increase and begins to decrease, or vice versa. A variable quantity may, therefore, have several maxima and minima.

Mayor. The chief officer in the government of a town corporation or city. In some cities in the United States where there is a city court, the mayor presides as chief judge.

Medical Jurisprudence. That department of science in which medical knowledge is called in to the aid of legislation, and consists in the application of the principles of medical science to the administration of justice and the preservation of the public health.

Mercantile Law, or Law Merchant. A system of laws which applies to mercantile contracts, and is based upon the custom of merchants. The principal subjects embraced within it are the law of shipping, including that of marine insurance; the law of negotiable bills of exchange and promissory notes, and the law of sales.

Merchandise. Goods and wares of common traffic.

Merchant. In England, one that exports and imports merchandise. In the United States, the term is applied to large dealers generally.

Merchantman. A vessel employed in the transport of articles of commerce.

Military Law. Is the code of regulations, consisting chiefly of the articles of war, which are used for the government of the army and navy. It does not supercede the general municipal law, but is rather a branch of it. The special tribunals employed for the administration of this law are termed courts martial.

Minimum. Least quantity—opposed to maximum. See Maxima and Minima.

Minor. An heir, male or female, under the age of twenty-one.

Mint. The place where coin is made.

Misadventure. Homicide by misadventure is where a man, doing a lawful act, without any intention of hurt, unfortunately kills another; as where a man is at work with a hatchet, and the head thereof flies off and kills a bystander, or where a person is shooting at a mark and undesignedly kills a man. The homicide, in such cases, is excusable.

Money. The common medium of exchange by which the value of commodities is estimated. "Monetary," relating to money.

Monopoly. An exclusive right to carry on some branch of trade or manufacture, in contradistinction to a freedom of trade or manufacture enjoyed by all the world, or by all the subjects of a particular country.

Mortgage. A pawn or conveyance of property, on condition, as security for a debt.

Municipal, or Positive Law. Is the rule by which particular districts, communities, or nations, are governed: distinguished from international law, commercial law, etc.

Murder. See Malice.

Mute. One who stands dumb or speechless when he ought to answer or plead.

Mutiny. Resistance to superiors in the military or naval service.

Naturalization. Is an act of investing an alien with the rights and privileges of a native-born citizen or subject.

Navigation. The art of conducting a ship from from one port to another on the sea.

Ne exeat (let him not depart). A writ issued against a person who owes an actually due equitable debt and is meditating a departure from the state or country, to prevent his flight without leave.

Negotiable Paper. Any document that is freely assignable from one to another.

Net. Clear of all charges.

Neutrality. In international law, is the impartial position maintained by one nation with regard to others which are at war.

Nolle prosequi. Is a proceeding by which a plaintiff withdraws from the further prosecution of his suit, when he has either misconceived the nature of the action or mistaken the proper party to be sued.

Non-assumpsit. A plea by way of traverse in the action of assumpsit or promises, whereby a man denies the existence of any promise to the effect alleged in the declaration, etc.

Non compos mentis. Said about one of unsound mind.

Non est inventus. The term applied to a sheriff's return to a writ of capias, when the defendant is not to be found in his baillwick, or within the limits of his authority. See Capias, etc.

Nonsuit. The renunciation of a suit by the plaintiff or demandant, most commonly upon the discovery of some error or defect, when the matter is so far proceeded in as that the jury is ready at the bar to deliver their verdict.

Notary. A public officer who attests deeds and writings of a mercantile kind, for making them authentic in other countries, and protesting bills of exchange, etc.

Note. Any short writing or memorandum. "Note of hand," a writing by which one person promises to pay another a sum of money on a certain day, or on demand: this may either be in the form of a bill or of a promissory note.

Notice. The making something known that a man was or might be ignorant of, and which it was proper he should be made acquainted with.

Not Guilty. A plea by way of traverse, occurring in actions ex delicto (from the crime) and amounts to a denial only of the breach of duty, or wrongful act, alleged to have been committed by the defendant.

Nude Contract. A bare, naked contract, without a consideration, which is void in law.

Nuisance. Any annoyance which tends to the hurt or inconvenience of another.

Oath. A solemn affirmation or denial of a thing, accompanied with an appeal to God.

Obligation. A bond containing a penalty with a condition annexed for payment of money, the performance of a covenant, or the like; differs from a bill, which is generally without a penalty or condition, though a bill may be made obligatory.

Occupancy. The taking possession of things which before did not belong to anybody.

Offense. The violation of any law; this is capital, if punished with death.

Officer. One who fills an office or post under government.

Official. A deputy appointed by the archdeacon for the execution of his office.

Ordinance. A law, rule, or precept; a command of a sovereign or superior.

Ordinary. In English law, one who has ordinary or immediate jurisdiction, in matters ecclesiastical, in any place.

Original, or Original Writ. Is the beginning or foundation of a real action at common law.

Outlawry. Is being excluded from the benefits and protection of the law.

Overt Act. A plain and open matter of fact, serving to prove a design.

Oyer and Terminer. Is a commission directed to the judges and other gentlemen of the county to which it is issued, by virtue whereof they have power to hear and determine treasons and all manner of felonies and trespasses.

Panel. A schedule or roll of parchment on which are written the names of the jurors returned by the sheriff; the jury.

Paper. A name given to money of credit by means of any written paper, as bills of exchange, promissory notes, etc.

Par. An equality between the exchanges of different countries; equal or nominal value.

Pardon. The remitting the punishment for any felony committed against the law.

Parol. By word of mouth, as parol evidence.

Partition. Dividing lands or tenements among coheirs or partners.

Partnership. A contract voluntarily entered into by two or more individuals to unite their capital, labor, and skill, all or any of them, for carrying on some business or undertaking in common, each deriving a certain share of the profits, and generally bearing a corresponding share of the loss arising therefrom.

Passport. A license to export or import goods.

Patent, or Letters Patent. Are certificates issued from the patent office, which give to the inventor of any useful machine the exclusive advantage of his invention.

Patrimony. A right descended from ancestors.

Pawn. A pledge given by way of security for the payment of a sum of money.

Payment. The discharge of a debt, also the time and measure of paying. "Prompt payment," the payment of a bill or debt before it becomes due.

Peace. A quiet and inoffensive behavior toward the government and the people.

Peer. An equal, or one of the same rank or condition; thus, it is the law, that those who are tried for any crime shall be tried by their peers, or equals.

Penal Laws. Are those laws which prohibit an act, and impose a penalty for the commission of it.

Penalty. Punishment due for an offense.

Perjury. The offense of swearing falsely to facts in a judicial proceeding.

Per Cent. Rate of interest, so much for each hundred; as five per cent, *i. e.*, five dollars for every hundred dollars.

Peremptory. Absolute, or determinate, as peremptory writ, etc.

Permit. A license or warrant for persons to pass with or sell goods.

Personal. Pertaining to the person and not the thing, as personal goods, as opposed to real property or estates; "Personal action," an action against the person.

Petition. An application in writing addressed to some authority, as a court of chancery, narrating certain facts, and praying for the order and direction of the court.

Piracy. Consists in committing those acts of robbery and depredation upon the high seas, or other places where the admiralty has jurisdiction, which, if committed upon land, would have amounted to felony there. In the United States, cases of piracy come under the jurisdiction of federal district courts.

Plea. That which either party alleges in support of his own cause. "Pleader," a counselor, or one who argues in a court of justice. "Pleading," putting in a plea in law; also the form of the pleading.

Pledges. Sureties which the plaintiff finds, that he shall prosecute his suit. See also Pawn.

Poaching. Stealing game.

Police. The internal government of a town as far as regards the preservation of peace.

Policy. An instrument or deed by which a contract of insurance is effected.

Poll, or Deed Poll. A deed that is polled or shaved even. "Poll," in elections, the register of those who give their vote, containing their name, place of residence, etc.

Posse Comitatus. Is the power of the county which the sheriff is empowered to raise in case of invasion, rebellion, riot, etc., and comprising all able-bodied males within the county.

Post. A conveyance for letters and dispatches. "Postman," one who delivers the letters from the post-office to the persons to whom they are addressed.

Posting. The copying of the items from the subsidiary books into the ledger. See Ledger.

Post-obit. A bond given for the purpose of securing a sum of money after the death of some particular person.

Power. An authority which one man gives to another to act for him, and is commonly applied to a reservation made in a conveyance for persons to do certain acts; as to make leases, or the like.

Practice of the Courts. Is the form and manner of conducting and carrying on suits at law or in equity.

Preamble. The introductory part of a statute, which states the reasons and intent of the law.

Precedents. Authorities to follow in determinations in courts of justice.

Precept. A command in writing, sent out by a magistrate for the bringing a person or a record before him.

Premises. Things spoken of or rehearsed before, as lands, tenements, etc., before mentioned in a lease.

Premium. A consideration, something given to invite a loan or bargain, to encourage some art or manufacture, to cover the risk upon insurances, etc.

Prescription. A title acquired by use and time, and allowed by law.

Presentment. A declaration or report made by jurors or others, of any offense to be inquired of in the court to which it is presented.

Presumptive Evidence. That which amounts almost to full proof. "Presumptive heir," one who, if the ancestor should die immediately, would, under present circumstances, be his heir as distinguished from the heir apparent.

Price Current. A list or enumeration of the various articles of merchandise, with their prices, the duties (if any) payable thereon, drawbacks, etc.

Primogeniture. Is priority of birth, in virtue of which the firstborn son in a family is among most nations entitled to a certain superiority or preference among his brethren.

Principal. A capital sum; a leader in a crime, or one who takes active part in it; a chief man.

Privy. One who is partaker of, or has an interest in, any action, as privies in blood, *i. e.*, heirs to the ancestor; privies in representation, as executors or administrators of the deceased.

Probate, Court of. In England, a court that is charged with proving wills, etc.; in the United States, settling of estates.

Process. The whole of the proceedings in any action, civil or criminal, real or personal, from the beginning to the end; in a limited sense, the writs which issue out of any court to compel the parties to a suit, or others, to do some act connected with the progress of the suit.

Proctor. One who manages the affairs of another. "Procuration," a writing by which one is authorized to attend to the affairs of another.

Profit and Loss. The gain or loss arising from goods bought and sold; the former of which, in book-keeping, is placed on the creditor's side, the latter on the debtor's side.

Pro forma. By way of form.

Prohibited Goods. Such as are prohibited to be carried out of or brought into any country.

Promissory Note. A note of hand, promising the payment of a certain sum at a certain time.

Property. In law, the highest right one has to anything.

Pro rata. In proportion.

Prosecution. The commencing a suit against any one in a court of law.

Protest. The declaration made by the holder of a bill of exchange, that the same is dishonored.

Punishment. The penalty due for an offense.

Quarantine. A regulation by which every ship, suspected of infection, is obliged to remain, for forty days, at a distance without holding any intercourse with the shore.

Quorum. A certain number of members of an assembly who are required to be present before any business can be transacted.

Quotation. The naming of the current price of marketable merchandise.

Quo warranto. A writ to inquire by what authority, right, or title, any person or corporation holds a franchise, exercises an office, and the like.

Rate. A valuation of every man's estate, for determining the proportion that each is to pay of any tax; price.

Real Property. Is property in lands, tenements, or hereditaments.

Rebate. Discount on account of prompt payment.

Receipt. An acknowledgment in writing of money received.

Receiver. The name of an officer appointed to receive money, as the receiver of rents, or receiver of fines; to receive and hold funds in trust for others.

Recognizance. An obligation of record, with condition to do some particular act, as to keep the peace, to pay a debt, or the like, upon the performance of which the obligation becomes null and void; but upon failure, the amount of the recognizance is forfeited. It differs from a bond, in that the latter is the creation of a new debt, while a recognizance is an acknowledgment upon record of a former debt.

Recorder. An officer associated with the mayor of a town for the administration of justice according to the forms of law.

Recovery. The obtaining of anything by judgment or trial at law.

Register. A book of public records.

Rejoinder. The defendant's answer to the plaintiff's reply.

Release. An instrument in writing by which estates, rights, etc., are extinguished.

Remainder. An estate in lands, tenements, etc., limited to be enjoyed after the expiration of another estate.

Remittance. A sum of money sent from a distance.

Rent. A profit issuing periodically out of lands or tenements, etc.

Replevin. A release of cattle or goods that are distrained.

Replication. The plaintiff's reply to the defendant's answer.

Report. A relation of cases judicially debated and decided upon.

Representation. The personating another, as in the case of an heir by representation.

Representative. One who represents a district or corporation, as a member of parliament, a member of congress.

Reprieve. A warrant for suspending the execution of a malefactor.

Reprisals. The seizing the vessel or goods of merchant strangers, as an equivalent for some loss sustained from the nation of which they are subjects.

Repugnance. A contradiction of what has been said before, as in deeds, grants, etc., which makes them void.

Resiant. One residing in a certain place.

Resources. Money, property, or supplies.

Residue. Is what remains of a testator's estate after payment of the debts and legacies; and the person to whom this is bequeathed is called the residuary legatee.

Restitution. The restoring to him lands or tenements, who had been unlawfully disseized of them.

Return. A certificate from sheriffs and bailiffs of what is done in the execution of a writ.

Return Days. Certain days in term time for the return of writs.

Returns. That which is returned, whether in goods or specie, for merchandise sent abroad; also the return of money laid out in the way of trade.

Revenue. The income or annual profit received from land or other funds, but is more particularly applied to the income of a state derived from the customs, excise taxes, etc., and devoted to the payment of the national expenses.

Reversion. A right of property, the enjoyment of which is to commence at some future time, either fixed or depending upon some contingency.

Right. Any title or claim by virtue of a condition, mortgage, etc.

Riot. The forcible doing an unlawful thing by three or more persons assembled together for that purpose. "Riot act," a legislative act, prohibiting riotous or tumultuous assemblies, which, being read by a magistrate or peace officer to the mob, obliges all persons to disperse within an hour, on pain of being apprehended as rioters.

Robbery. Unlawful taking away of money or goods of any value from the person of another, or in his presence, either by violence or by putting him in fear.

Salvage. A recompense allowed to such persons as have assisted in saving merchandise, ships, etc., from wreck.

Sample. A piece or portion of some commodity, or specimen of merchandise, to show the quality of the whole.

Scandal. Is defined to be "a disadvantageous rumor or report, or an action whereby one is affronted in public."

Scire facias. A judicial writ, directing the sheriff to give notice to a party to show cause to the court whence it issues, why execution of a judgment passed should not be made out.

Scrip. That part of any loan which remains unpaid for by the subscribers.

Seal. An impression made on paper, clay, wax, or other substance, by means of a die of metal or other material; to confirm or establish, as to seal a deed.

Search, Right of. In law of nations, is the right of belligerents, during war, to visit and search the vessels of neutrals for contraband of war.

Search Warrant. A document, legally obtained, to search for stolen goods.

Securities. Bonds or other documents as evidence of debt.

Seize. To take possession of a thing.

Seizure. An arrest of merchandise, that is prohibited or otherwise forfeited.

Sequestration. The setting aside of a thing in controversy from both parties that contend for it, to be delivered to the one who the law decides is entitled to it.

Set-off. The amount of a debt due by the plaintiff to the defendant in a cause which the defendant is entitled to set off, in answer either to the whole or part, as the case may be, of the plaintiff's claim.

Share. A part of something belonging to one.

Sheriff. An officer who attends upon court, has charge of the prisoners, sees to the execution of writs, etc.

Sight Draft. A draft drawn payable at sight, *i. e.*, as soon as it is seen by the drawee.

Signature. The signing any paper, or putting any mark under a writing.

Sinking Fund. The fund created for sinking or paying the public debt, or purchasing the stock for the government. It is made up principally from obligations which have been redeemed by the government, the interest on which is continued and turned into the sinking fund.

Slander. Is the malicious defamation of a man's character by spoken words, as libel is by written words.

Solicitor. The designation of persons admitted to conduct suits, etc., in the court of chancery, as attorneys in the courts of common law.

Solvent. Able to pay or meet all debts.

Sounding. Trying the depth of the water, and the quality of the bottom, by a line with a plummet at the end.

Special Jury. A jury of a higher order of persons, sworn to try a particular case.

Specialty. A bond, bill, or similar instrument.

Specie. Any kind of money coined from the precious metals.

Specification. A written document, containing details, as particular charges and specifications against a public officer, etc.

Standard. That which is established by authority or by general consent.

Staple. The principal products or manufactures of a country or town.

Stealing. The fraudulent taking away of another man's goods with an intent to steal them.

Steward. One who manages the affairs of another, particularly in the management of estates.

Stock. Any fund consisting of money or goods employed by a person in trade, particularly the sum of money raised by a company for carrying on any trading concern.

Stoppage in Transitu. The right of a seller to stop goods on the route if he learns that the buyer is insolvent.

Subpœna. A writ for summoning witnesses.

Sufferance. One who continues as tenant after his estate is ended, and wrongfully holds as against another.

Suit. An action at law.

Summons. A citation by virtue of which any man is called to appear before a magistrate or judge.

Sumptuary Laws. Are laws regulating dress and domestic diet.

Suspension of Payment. The acknowledgment by a mercantile firm that it cannot pay its debts.

Surety. One who undertakes to be answerable for the acts or non-acts of another, who is called the principal.

Tare. An abatement or deduction made from the weight of a parcel of goods, on account of the chest, cask, bag, etc., in which they are contained.

Tariff. Is a table giving the various duties, drawbacks, bounties, etc., charged or allowed on the importation or exportation of various articles.

Taxation. The taking a portion, or the value of a portion of the property or labor of individuals, and disposing of it by government. "Direct tax," is one which is demanded from the very persons who it is intended or desired should pay it. "Indirect tax," one which is demanded from one person in the expectation and intention that he shall indemnify himself at the expense of another, as in the excise or customs.

Tenant. One who holds lands or tenements of another. Tenants are of various kinds, according to the nature of their estates; as in fee simple, in fee tail, for life, for years, at will, and at sufferance.

Tender. An offer to pay a debt, or to make pecuniary compensation to a party injured.

Tenement. Anything that may be holden in the legal sense; as, all corporeal hereditaments, and incorporeal hereditaments of a permanent nature, issuing out of the same, as lands, houses, right of common, franchises, offices, etc. In its more narrow and popular signification, it is applied only to houses and other buildings.

Tenure. The conditions on which lands and tenements are held.

Term. A fixed and limited time within which courts of judicature are open.

Testament. The solemn act whereby a man declares his last will as to the disposal of his estate after his death. "Testator," a man who makes his will. "Testatrix," a woman who makes her will.

Tonnage. A duty paid at a certain rate for every ton of goods exported or imported; the capacity of burden possessed by a vessel.

Tontine. A sort of increasing annuity, or a loan given by a number of persons with the benefit of survivorship.

Transfer. The making over stock, etc., from the seller to the buyer.

Transportation. The carrying of goods by land or sea to a distance.

Traverse. The name given to a plea contradicting some matter of fact alleged by the opposite party.

Treason. Overt acts, manifesting a design against the government.

Treasurer. An officer to whose care the treasury of the country or of any company is committed. "Treasury," the place where the public money is deposited.

Trespass. Any wrong done by one private man to another, either to his person or his property.

Trust. A charge or estate held for the use of another. "Trustee," the person in whom a trust is vested.

Usance. The time, according to the usage or custom of different countries, which is allowed to elapse between the date of a bill and the time of its payment.

Usufruct. The right of using and reaping the fruits of things belonging to others, without destroying or wasting the subject over which such right extends.

Usury. The taking more interest for the loan of money than is allowed by law.

Vacancy. A position without an incumbent; abandoned, as a vacant estate.

Vagrant. A beggar; a strolling and idle person, who wanders from place to place.

Vend. To dispose of or sell, as small articles for money. "Vendor," the seller. "Vendee," the buyer.

Venire facias. A writ addressed to the sheriff or other officer, to cause the parties set forth in the writ to come to the place named.

Venue. The county in which an action is to be tried.

Verdict. The answer of a jury given to the court concerning the matter of fact in any cause committed to their trial.

Voucher. A writing, document, or book which tends to establish the truth of accounts, etc.

Wages. The reward or compensation paid to laborers, by those who employ them, in return for their services.

Ward. One who is under the care of a guardian.

Warrant. A writ commanding an officer of justice to arrest any offender.

Warrant of Attorney. An authority given to an attorney by his client to appear and plead for him.

Warranty. A promise or covenant by deed, made by the bargainer for himself and his heirs, to warrant and secure the bargainee and his heirs against all men for enjoying the thing agreed on or granted between them.

Warehouse. A place where merchandises are kept.

Waste. Is whatever tends to the destruction or depreciating the value of an inheritance.

Way. Denotes either the right which one or more persons have of passing over the land of another, or the space over which such right is exercisable; a road, as the highway.

Wharfage. The money or valuable equivalent paid for hire or use of a wharf or quay.

Will. The act by which a man declares his will as to the disposal of his estate after his death. A nuncupative will is one made by word of mouth. See Testament.

Witness. A person who gives evidence in judicial proceedings.

Wreck. The ruins of a ship at sea that has been dashed to pieces.

Writ. A writing issuing out of some court of law, conferring some right or privilege, or commanding something to be done.

ATLAS OF THE WORLD.

EUROPE.

Europe is a peninsula, projecting from Asia. It is situated in the same latitude as the United States and the Dominion of Canada.

The extreme length of Europe from northeast to southwest is about 3,500 miles. The population is about five times that of the United States.

Its water boundary, if a continuous line, would reach four-fifths of the way around the world.

The British Isles are separated from the continent by the North Sea, which has an average depth of about 600 feet. There is much evidence to show that they were formerly a part of the main land.

In relative extent of coast, Europe surpasses all other countries. It is partly to the great number of indentations of the coast that Europe owes its commercial supremacy.

The islands of Europe constitute about one-twentieth of its area.

The greater part of the continent is low and level. Russia and all the territory bordering on the North and and Baltic Seas constitute a vast plain, called Low Europe.

The basin of the Caspian Sea and much of the Netherlands are below the sea level.

A high plateau, extending along the southern part of the continent, is known as High Europe. This plateau is surrounded by the irregular and broken mountain ranges which constitute the Alpine System, the main axis of the continent.

The Alps are the highest range. The other principal ranges are the Pyrenees, Apennines, Balkan, Carpathian and Caucasus mountains.

The Alps have long been celebrated for the number and extent of their glaciers, among which are the sources of the Rhine, Rhone, Po and several tributaries of the Danube.

The chief lake region of Europe is in Northwestern Russia. Lake Ladoga is the largest lake.

The lakes in Switzerland, especially Geneva and Constance, are celebrated for their beautiful scenery. There are many salt lakes in Russia, most of which are situated in the basin of the Caspian Sea.

Most of the rivers of Western Europe are connected with one another by canals, and are navigable.

Climate.—Europe enjoys a more equable climate than any other country situated in corresponding latitudes. Its mildness is due chiefly to the southwesterly winds, which are warmed by the waters of the Gulf Stream.

Rain is most abundant on the western coasts.

The tundras, or frozen marshes of the Arctic slope, are covered with mosses and willows. South of this region is a belt of dense forest, chiefly of pine, oak, elm and ash.

Grains, hemp, flax and tobacco are cultivated in the central regions. The cultivation of the grape, olive, orange, lemon, fig, mulberry and cotton is confined chie flyto the Mediterranean Coast.

Most of the wild animals have disappeared. The reindeer, white bear and other animals valuable for their furs are, however, found in the more thinly settled regions; the wolf and wild boar are common in the forests, and the chamois and ibex inhabit the Alpine heights.

Water-fowl are numerous. The sardine, herring, pilchard, anchovy and other fish suitable for food, abound in the surrounding waters.

Minerals.—Coal, iron and copper are very widely distributed. Silver, zinc and lead are plentiful in the central highlands. Quicksilver, niter, sulphur and salt in volcanic regions. Coral of great beauty and value is obtained in the Mediterranean Sea.

People.—The inhabitants of Europe, numbering about 330,000,000, belong to the Caucasian and Mongolian races.

ASIA.

Asia, the largest country in the world, occupies the eastern part of the Eastern Continent.

It contains about one-third of the land surface of the earth; is twice as large as North America, and nearly five times the size of the United States. Its greatest length is 7,500 miles, nearly one-third the circumference of the earth.

The islands of Asia are a partly submerged mountain chain. All of them volcanic.

The northwestern Asia is a continuous plain; the southeastern, an elevated plateau traversed by high mountains. The line of greatest length is also the line which separates the highlands from the lowlands. From the Hindoo Koosh, the mountain ranges of Asia radiate toward the east.

The Himalaya mountains are the highest in the world. The summit of Mt. Everest is over 29,000 feet above the sea level, being more than 6,000 feet higher than the highest peak of the American continent.

The Caspian Sea and the Sea of Aral are thought to have been formerly arms of the ocean. Both are salt lakes. The former is below the sea level.

Lake Baikal is the largest body of fresh water in Asia, and is about as large as Lake Erie.

The rivers of Asia, though of great length, are distinguished by narrow valleys, rather than large basins. Most of them rise in the central highlands, from which they radiate in three directions—north, east and south, and mingle their waters with those of three oceans.

The Yang-tse and Hoang rivers are subject to great changes, brought about by the shifting of their channels. In 1851 the Hoang Ho burst through its banks and poured its waters into the Gulf of Pecheelee, and within two years its lower course had so changed that the mouth of the river had shifted 250 miles from its former position.

Central Hindoostan is often called the plateau of the Deccan.

The Obi is the only river navigable to any considerable distance.

The river valleys and the plains which are well watered are extremely fertile. The high, central region and the western plateaus are dry, sandy and barren.

Every degree of temperature and moisture may be found in Asia, from that of the frozen tundras of Siberia, to that of the hot, pestilential jungles of India. The deserts of Arabia, Persia, Turkestan and Gobi receive little or no rain, while the southern slope of the Himalaya is annually inundated.

Siberia is swept by icy winds from the Arctic Ocean; Arabia, by the hot and fatal simoon. India is traversed by winds which scorch the entire surface for half the year, and flood it withrain the remaining part.

Destructive cyclones often visit the coast, frequently piling up the waters of the Bay of Bengal until the lowlands of the Ganges are submerged.

Southern Asia is covered with a dense tropical vegetation. The palm, bamboo, and banyan tree are abundant. Rice, cotton, sugar-cane, flax, jute, hemp, poppy, and the spices, are the principal plants cultivated in the plains and valleys of Southern Asia.

Central Asia produces the plants which thrive best in the temperate zones. Vast forests of pine, larch, teak, maple and birch are on the upland terraces of Siberia. The chief cultivated plants of Central, Eastern and Southeastern Asia are wheat, tea and rice.

Western Asia produces the famous Mocha coffee, tobacco, the fig, date and olive.

Nearly all the domestic animals of the earth are found in Asia, and most of them are native to it. The camel and elephant are used as beasts of burden.

Southern Asia abounds in fierce animals and dangerous reptiles. The largest animals are the elephant, rhinocerous, tapir, lion, tiger, hyena, and jackal. The reptiles include the crocodile, python and cobra de capello. Monkeys and beautiful birds are numerous.

In the colder regions the bear, wolf, fox, buffalo and several species of wild cattle are common. Also many kinds of deer.

Gold and platinum are widely diffused throughout the Ural Mountains and the central plateaus.

Silver is mined in Siberia. Copper and iron are abundant and widely distributed.

Tin is abundant in the Malay Peninsula and the island of Banca, near Sumatra.

Petroleum is found in the basin of the Caspian Sea.

Asia has always been famous for precious stones. Most of the large and valuable diamonds, sapphires, rubies and emeralds are from the mines of India.

The finest pearls are obtained in the Persian Gulf and in the water along the coasts of Ceylon.

Asia is probably the birthplace of the human race. The strongest evidences of history and science point to the highlands of Asia as the birthplace of man. Somewhere in the valleys of Persia, the old name of which was Ayra, there lived a people who built houses, cultivated the soil and had forms of government. They believed in an Omnipotent Being and also a spirit of evil. Fully one-half the inhabitants of the earth live in China and India.

Siberia, Russian, Turkestan and Trancaucasia are subject to Russian whose capital is St. Petersburgh.

Siberia may be divided into three belts; agricultural and grazing land in the South; forests in the middle, and frozen marshes in the North.

Gold, silver, copper and other metals are mined in the mountains; and numerous wild animals are hunted for their furs.

Trade is carried on by means of caravans and camel trains. In summer boats navigate the rivers, and in the winter sledges are drawn on the ice and snow by dogs, horses and reindeer.

The chief cities are Tiflis in Transcaucasia, west of the Caspian Sea; Tashkend, in Russian Turkestan; Omsk, in Western Siberia; and Irkootsk, in Eastern Siberia. Yakootsk, on the Lena River is supposed to be the coldest city in the world.

The Chinese Empire is larger by one-half than the United States and contains about six times as many inhabitants.

China contains the greater part of the population. The land is fertile and well cultivated, agriculture being the chief occupation of the people. Rivers and canals are numerous; much traveling is done in boats. Thousands of the inhabitants of China have their houses and gardens on rafts and boats which float on the rivers. These people live by gardening and fishing. In their floating houses their children are born, are married and die. A young child falling overboard there is kept from drowning by means of an empty gourd which its mother had tied between its shoulders.

The food of the Chinese consists, principally, of rice and fish.

The leading exports from China are tea, silk, porcelain and pottery.

Its trade is carried on, mainly, with Great Britain, Australia and the United States, by meane of ships, and with Russia by means of caravans.

Many of the inhabitants of the other divisions of the empire are wandering tribes, whose occupation is the raising of horses, sheep and goats.

Pekin, the capital of the Chinese Empire, is noted for its surrounding walls, magnificent gates and heathen temples. Its houses are only one or two stories high. Its population is greater than that of New York City.

Thibet is situated on a high plateau, surrounded by the highest mountains in the world.

Corea is a kingdom. It was, until recently, under the control of the Chinese government.

The Empire of Japan consists of islands, which contain mountains, streams, forests, and a well cultivated soil. Japan contains beautiful lakes, rivers, waterfalls, trees, and flowers of great variety; bears, deer, wolves and foxes; pheasants and other birds. The celebrated mountain in Japan is Fujiyama, whose summit is covered with snow nearly all the year. In summer, bands of pilgrims, dressed in white, travel to its summit to worship idol sthere.

The principal occupation of the Japanese are agriculture, manufacturing and mining.

It exports comprise tea, rice, silks, porcelain, fans and lacquered ware.

Tokio, the capital, is the residence of the emperor, called the mikado. Its chief port is Yokahama.

India is larger than all the Pacific States and Territories, and contains about four times as many inhabitants as the United States.

The Empire of India is ruled by the Governor-General, who is appointed by Victoria, Queen of Great Britain and Ireland and Empress of India. Next to the Chinese Empire it is the most populous in the world. India was settled by the Aryans, about 1400 B. C. They were Brahmins, but unlike the Brahmins of the present time in their religious teaching and practices. Their language was the Sanskrit. The people are divided into castes. They believe in the transmigration of souls. Gautama or Buddha, about 500 B. C., introduced a form of religion which, after a long struggle with Brahmanism, was overcome in India and transplanted in China, where it has degenerated into a debasing form of idolatry. Queen Elizabeth chartered the East India Company in 1600 A. D. The vast empire, which had grown by its conquests, was transferred to the British Crown in 1858.

Nearly the whole of India is subject to Great Britain, either absolutely or as tributary States.

India is remarkable for its high, snow-covered peaks, hot climate and large population.

Its low plains in the north are the most fertile in the world. The west and south contain desert tracts.

Agriculture and stock raising are the principal industries.

The exports are cotton, opium, rice, wheat and jute. Cattle, camels, buffaloes, sheep and goats are numerous. The inhabitants subsist, principally, upon rice, fish and tea.

Calcutta is the capital and the largest city in India, and the most important city in Asia. Bombay, on the western coast, and Madras, on the eastern, are important cities.

Ceylon is a mountainous island, belonging to Great Britain. It is famous for coffee and spices. Pearl oysters abound on the southern coast, and the fishery is often very profitable.

Farther India or Indo-China, forming the southeastern peninsula of Asia, comprises the kingdoms of Burmah, Siam and Anam, Lower Cochin China, Cambodia and the Malay Peninsula.

This division of Asia is remarkable for its long mountain ranges and fertile valleys, its hot, moist climate, and its dense forests and jungles.

It contains large, savage animals, and many tribes of people scarcely removed from barbarism.

The chief occupation of the inhabitants is the cultivation of rice, which is their principal article of food.

Bangkok, the capital of Siam, is the largest city in Farther India. It contains royal palaces and many pagodas. These are surrounded by bamboo houses built on piles.

Mandalay is the capital of Burmah.

Saigon is a seaport of French Cochin China.

Singapore, on the Island of Singapore, is a seaport belonging to Great Britain.

Persia, Afghanistan, Beloochistan and Bokhara are remarkable for their desert tracts, forest-covered mountains and fertile river valleys.

The principal products are grain, fruits, sugar indigo and dates.

Many of the inhabitants own large flocks of goats and sheep, while others are engaged in the manufacture of silk goods, shawls, rugs and perfumery, or in the caravan trade. There are, also, many roving, warlike tribes. Nearly all are Mohammedans.

Persia is remarkable for extensive salt deserts. Near the Caspian Sea, however, vegetation is luxuriant. Here, as in other Mohammedan countries, education is confined to learning portions of the Koran and scraps of poetry. The Persians are a slow, easy-going people, hospitable, generous, but procrastinating.

These countries are important because of their situation between Russia and the Indian Ocean. Afghanistan has been called the "gateway to India."

Teheran, the capital of Persia, and Tabriz, are the chief cities.

Cabul, Herat and Candahar are the principal cities in Afghanistan.

Arabia is chiefly a hot, desert plateau, with oases of different sizes, in which dates, grapes, tamarinds and other fruits grow.

It has no general government, the inhabitants being ruled by sheiks or chiefs. The rulers are called Sultans.

Arabia is celebrated for fine dromedaries and horses, and excellent coffee.

Muscat, the capital of Oman, is the largest city in Arabia, and the chief seaport.

Aden is a fortified seaport belonging to Great Britain.

Mecca, the birthplace of Mohammed, is visited by many Mohammedan pilgrims every year. It is said to be the hottest city in the world.

Turkey in Asia is a part of the Ottoman, or Turkish Empire, whose capital is Constantinople.

Its northern part is remarkable for forests, mountains and fertile valleys. Its eastern part for the fertile plains of the Tigris and Euphrates, and its southern for a desert region.

Tropical fruits, cotton, grain and tobacco grow abundantly.

The people are chiefly Turks and Arabs, professing the Mohammedan religion.

Smyrna, an important commercial port and steamer station, is the largest city.

Damascus is the oldest city in the world. It contains grand old mosques, and is the center of the caravan trade. Its manufactures comprise saddles and silk goods.

Palestine, or the Holy Land, is mentioned in Scripture as the Promised Land of the Ancient Hebrews, and the birthplace of Christianity. It contains the cities of Jerusalem and Bethlehem, the Valley of the Jordan, the Dead Sea and the Sea of Galilee.

AFRICA.

Africa, the southwestern continent of the Old World, is the only country stretching entirely across the Torrid Zone.

It is a peninsula, joined to Asia by the Isthmus of Suez. The ship-canal, constructed across the isthmus, makes it, artificially, an island. The shortest distance across the Isthmus of Suez is about seventy-two miles; the line of the canal is one hundred miles. The average height of the isthmus above sea level is scarcely ten feet.

The Suez Canal was completed in 1869. It has a depth of twenty-four feet, and a clear channel seventy-two feet in width. By connecting the Red sea with the Mediterranean, this canal furnishes a shorter route between European ports and India, than that around the Cape of Good Hope. It extends from Port Said, on the Mediterranean, to Suez, a sea-port town near the head of the Gulf of Suez.

Africa is the second country in size. Its length and breadth are each about 5,000 miles.

The coast is unbroken by bays and inlets such as make secure harbors for vessels. In proportion to its size, it has the shortest coast line.

There are many continental islands lying along the coast of Africa. Madagascar, the largest, is separated from the continent by a very shallow channel.

The interior of Africa is a plateau, which is highest in the south and southeast. This, in most parts, is bordered by mountains, between which and the sea is a low and narrow strip of coast.

The average elevation of the high plateau is about 5,000 feet, and of the northern region, about 1,500 feet.

The principal mountain system extends along the eastern side of the continent. Mount Kenia, the highest peak, is about 20,000 feet above the level of the sea.

The great Sahara Desert has an undulating surface, and is covered mostly with shifting sand and gravel. A small portion, south of Barca, is below the sea level.

Oases, watered by springs and covered with groves of date-palm trees, are met with in different parts of the desert.

Soudan, situated south of the Great Desert, is a region remarkable for its extreme heat and excessive rains and droughts.

Central Africa, or the region crossed by the Equator, is remarkable for its fertility; and, owing to its great height above the sea-level, its climate is mild and healthful. This region is drained by many large rivers.

Southern Africa is mountainous, but it contains many fertile valleys and plains well adapted to agriculture and stock-raising. The Kalahari Desert, though destitute of streams, is covered during a great part of the year with grass. The lakes of Africa are confined chiefly to the high, equatorial region, and are remarkable for their number and size. Lake Victoria is the largest lake in the world. Its outlet is the Nile river.

The River Nile flows through the most important part of Africa. Its lower course is in a region almost rainless, and for more than 1,500 miles it does not receive a single tributary. It is fed by the annual rains and the melting snows of the high mountains.

The water of the Nile is highest from May till September, when the lower valley is covered with a fine, rich soil, brought down by the flood; and the seeds which are scattered over the water, as it subsides, bring forth abundant crops of grain. Cotton, also, is an important product of the Nile valley.

The Congo, first explored by Livingston, and afterward by Stanley, drains the most fertile part of the continent. Its source is in the region of heavy rains.

The region of the greatest heat is in the Egyptian Soudan. There the midway temperature during the summer months is often 140 deg. Fahr., while the nights are sometimes so cold that ice forms. In the desert, hot winds, known as simoons, are prevalent, and sand storms are often destructive. The coast, generally, is very unhealthy.

Southern Africa possesses a mild and genial climate. Here are the principal settlements formed by Europeans in Africa. This is the home of the Caffre.

Northern Africa yields grain, cotton, dates, almonds and olive oil. Rice is a leading product of the Guinea coast. The date-palm flourishes along the shores of the Mediterranean and in the oases of the desert. The famous boabab tree is found in Central Africa. It is famous for its great size and age. Groves of teak, mangrove, ebony, and India rubber abound on the western coast. Gum arabic, myrrh, cotton, coffee, suger-cane, and spices are products of Eastern Africa. The islands produce tropical fruits, wine and amber.

Africa is noted for large and ferocious animals, and venomous serpents. The lion is found in all parts of the continent. The hippopotamus inhabits the upper Nile, while the marshes and streams of the low coast contain many crocodiles, lizards, and other reptiles.

The gorilla, the largest and fiercest of apes, and the chimpanzee, are met in the west. The elephant, giraffe, and the two-horned rhinoceros, belong in Central and Southern Africa. There are many species of deer and antelope. The zebra and the gnu or horned horse, are numerous in the grassy plains of Southern Africa. The ostrich is hunted in various parts of the continent; but in Southern Africa, the rearing of those birds for their plumes is an important occupation.

The most useful animal in crossing desert regions is the camel. Travelers and merchants, with their camels carrying merchandise, cross the desert in companies, called caravans. For more than four thousand years camels have been almost the sole means employed to carry merchandise across the deserts. The camel will carry a load of four or five hundred pounds weight fifty miles a day for five or six days, although he may not be supplied with food or water during that time.

The coasts of Guinea and Senegambia have long been celebrated for gold. Copper, lead, salt and saltpeter are obtained in some places.

Important diamond fields are in South Africa.

Africans comprise three races—the Caucasian, Negro and Malay.

The Moors, Arabs, Berbers, Egyptians, and various tribes of the north are Caucasians; the tribes of Central and Southern Africa, and the east and west coasts, Negroes; and those of Madagascar, Malays.

Excepting the European colonists who have settled along the coast, nearly all the Caucasian inhabitants are Mohammedans, and are in a low state of civilization.

Most of the Negro tribes of Africa are savages, in a degraded condition. There are, however, several tribes which cultivate the soil, raise cattle and observe laws.

The Barbary States, situated on the Mediterranean coast, extend from the Atlantic Ocean to Egypt.

The climate is mild and healthful. South of the Atlas Mountains it is extremely hot and arid. There are two seasons, a rainy and a dry.

The highlands are covered with forests of cedar, pine, cork trees and other valuable timber. The lowlands are finely adapted to agriculture.

The most important productions are dates, oranges, bananas, pomegranates and figs.

The natives consist of Moors, Arabs and Berbers. Although descended from a very enlightened people, they are extremely ignorant, degraded and treacherous. The foreigners are mainly French and Jewish colonists. Wherever they settled, agriculture, manufactures and commerce quickly followed.

Morocco is under the absolute government of a sultan, who is subject to Turkey. The country is sparsely settled. Cattle, sheep and goats are reared extensively.

In tanning and dyeing leather the people exhibit great skill, and the leather manufactured there is exported to all parts of the world.

Morocco and Fez are the most important cities. The sultan holds court at one and the other, alternately.

Algeria is a French possession, and contains a large European population. It is one of the most prosperous of the Barbary States.

Several lines of railway are in operation, and caravans, trading in ivory, gums and ostrich feathers, penetrate the interior of Soudan.

Algiers is the capital and commercial center. It is connected with Marseilles by a submarine telegraph cable.

Tunis, also, is a French possession. It was formerly subject to Turkey. It is noted for its olive groves, date plantations, coral fisheries, and the manufacture of red caps, soap and leather.

Tunis, near the site of ancient Carthage, is the capital and seaport. It is a very old city.

Tripoli, though nominally a Turkish province, is a despotic monarchy, governed by a bey.

It contains no rivers, and rain seldom falls; yet, on account of heavy dews, the soil is productive.

The leading exports are wool, hides and ivory.

Tripoli is the capital and seaport. Mourzouk, the capital of Fezzan, is the center of a large caravan trade.

The Nile countries comprise Egypt proper, Nubia and the Egyptian Soudan, or Kingdom of the Mahdi. They are governed by a hereditary monarch called the khedive; and are subject to Turkey.

The greater part of Egypt is a desert. Along the lower course of the Nile, only the narrow valley, which is annually inundated, is capable of producing crops.

Since the completion of the Suez canal, rapid progress has been made in developing the agricultural and commercial interests of Egypt.

Railways have been built, and by means of irrigating canals extensive tracts of desert land have been made productive.

Most of the wealthier classes have been educated in Europe, and foreign customs are being introduced throughout the country. The laboring classes are greatly oppressed, and are practically in a state of slavery.

The principal products of Egypt are cotton, grain, sugar and rice. Gum arabic, ivory, indigo and ostrich feathers are obtained in the Soudan. Manufactories have been established in the larger cities and towns.

Cairo, the capital of Egypt, is the largest city in Africa. Alexandria is the principal seaport. Railways connect both cities with Suez, the southern seaport of the Suez canal. The northern, or Mediterranean, seaport of the canal is Port Said.

The other seaports of Egypt are Rosetta and Damietta.

Nubia and the Egyptian Soudan are inhabited by warlike tribes of Arab and Negro descent.

Khartoum, at the junction of the Blue and the White Nile, is the center of a large caravan trade.

Abyssinia is the high and rugged plateau, containing a number of fertile valleys. The climate, owing to the high altitude of the surface, is mild and healthful. The people, though of a dark, or swarthy complexion, belong to the Caucasian race, and consist, chiefly, of Copts and Berbers, who are ignorant and degraded.

Abyssinia consists of several independent states, having no general government.

Gondar is the capital. Massowah, an Egyptian possession, is the only seaport.

South Africa comprises several prosperous colonies. Some of these belong to Great Britain, others are independent states founded by Dutch settlers, while others still are the homes of native tribes.

Cape Colony and Natal are British colonies. The surface of the land is high, undulating and well adapted to grazing.

The leading occupations are the raising of cattle and sheep and the rearing of ostriches. Wool and ostrich feathers are among the most valuable exports.

Cape Town, the capital of Cape Colony, is the chief seaport of South Africa.

Pietermaritzburg is the capital of Natal.

West Griqualand, also a possession of Great Britain, contains the most productive diamond mines in the world.

Kimberly, its capital, is situated in the diamond fields, and is the chief market for rough diamonds.

Caffraria and Zululand are inhabited by natives who are noted for their intelligence, fine physical appearance and great bravery. Both countries are governed by native chiefs, although subject to Great Britain.

The Orange Free State and the South African Republic (formerly Transvaal) are inhabited by Dutch farmers, called Boers. The Boers are noted for their bravery and love of independence.

Bloemfontein is the capital of the Orange Free State, and Pretoria of the South African Republic. Wool, cattle and grain are the exports.

Central Africa includes the regions comprised in Sahara or the Great Desert, Soudan, the Congo Free State and the territory southward to the Boer republics.

Sahara contains about twenty oases, inhabited by wandering tribes, who live chiefly by plundering the caravans.

Soudan is inhabited by semi-barbarous tribes, each of which is governed by a chief, whose will is law.

Their occupation is herding cattle, but they are constantly at war with one another.

Timbuctoo, Sackatoo and Kouka are centers of a large caravan trade.

The Congo Free State embraces the basin of the Congo river. It is subject to the King of Belgium.

Zanzibar is a strip of coast nearly 1,000 miles long, including a number of small islands. It is an absolute monarchy, governed by a sultan.

Zanzibar, on an island of the same name, is the capital. It is the center of a large trade in ivory, gum copal and spices. Trade is almost exclusively in the hands of Hindoo and Arab merchants.

Mozambique includes a number of Portuguese colonies, extending from Zululand to Zanzibar. The city of Mozambique, the chief center of trade, is the residence of the Governor-General.

The West coast is covered with forests of valuable timber. The Highlands contain gold and silver.

Senegambia includes most of the basins of the Senegal and Gambia rivers. English and French traders have settled along the coast.

Sierra Leone is a prosperous English colony. It is inhabited by Negroes, many of whom were rescued from slave-ships. Freetown is the capital.

Liberia is a small republic, originally established as a colony for freed slaves from the United States. Monrovia is the capital.

Dahomey and Ashantee are absolute despotisms.

The natives are superstitious, warlike and ferocious. In Dahomey wholesale murders, or human sacrifices, form part of certain celebrations. Here the king has an army of women, whose weapons are muskets, swords and clubs. Ashantee, also, is ruled by a native king, who is independent.

Madagascar, a kingdom, contains a civilized population, whose principal industries are agriculture and herding.

St. Helena belongs to Great Britain; the Canary Islands to Spain; the Madeira, the Azores and the Cape Verd Islands to Portugal.

NORTH AMERICA.

North America is the northern division of the western continent. It extends almost from the North Pole to the Equator.

The shape of North America is nearly that of a triangle, broad at the north and tapering almost to a point at the south. Its length is nearly 5,000 miles. Its area is equal to one-half that of Asia, or two and a half times that of Europe. Its northern and eastern coasts are remarkable for numerous indentations and good harbors, while the western coast has but few.

The western part of the continent is a high plateau, on which are many nearly parallel ranges of mountains. The direction of these ranges is from northwest to southeast. They constitute the Rocky Mountain system, and form the main axis of the continent. The culminating ranges of this system inclose a large, oval-shaped plateau, called the Great Basin.

The Appalachian system, in the eastern part, is composed of several parallel ranges, extending from northeast to southwest. Their average height is about 3,000 feet or about one-third that of the Western Highlands.

Volcanoes are numerous in the Western Highlands, and some of them are constantly active.

The highest peak of the Rocky Mountain system is Mt. St. Elias, 19,500 feet; and of the Appalachian system, Mt. Mitchell, 6,707 feet.

The great central plain, extending from Hudson Bay to the Gulf of Mexico, lies between the two mountain systems. The Height of Land, an almost imperceptible divide, crosses the plain, separating the Arctic Slope from the Gulf Slope.

The lakes of North America are remarkable for their number and size. If a straight line were drawn from Chesapeake Bay to the mouth of the Mackenzie river, it would pass through nearly every large lake in North America.

The great lakes contain about one-half the fresh water on the globe. Lake Superior, the largest, however, is exceeded in size by Lake Victoria in Africa.

Salt and alkaline lakes are numerous in the Pacific highlands. Great Salt Lake, in Utah, has an area twice that of Rhode Island. With the exception of the Caspian sea, it is the largest salt lake on the globe.

The Mississippi basin is the largest basin in the world, excepting that of the Amazon river. Its chief stream, the Mississippi and Missouri, exceeds every other river in length.

The Yukon river, second in size, is, in many respects, unlike any other river on the continent. Its upper course is remarkable for falls and rapids. Its lower part contains many islands, and is often five and six miles wide.

The Columbia, Colorado, and many of their tributaries which rise in the interior of the continent, flow, in some places, through deep canons.

The soil is very productive. The Mississippi basin and the slopes of the Atlantic ocean and the Gulf of Mexico contain soil of great fertility. On the Pacific coast the climate is much milder than in corresponding latitudes on the Atlantic coast. The northern part of the continent is extremely cold; the central portion is characterized by hot summers and cold winters; the southern part has a tropical climate. The rainfall is greatest in the northwest and southeast. The rains of the Pacific coast fall mostly in winter. In northern regions vegetation is limited to mosses, lichens and a few shrubs. A belt of cone-bearing and deciduous trees extends through the middle of the Temperate zone. In the south, these are replaced by palms, tree-ferns, bananas, and agaves. Grasses are abundant throughout the Temperate zone. Indian corn and tobacco are native to North America.

The fur seal, whale, walrus, polar bear and musk-ox are the most important animals of the northern regions. The bison, deer, bear, wolf and panther, are common in the north central part. The grizzly bear is found in North America only. The monkey in the tropical regions.

Reptiles are numerous in the south. Nearly 500 species of birds are known. Fish are abundant; the cod, salmon, herring and mackerel are valuable as food.

The mineral resources of North America surpass those of any other continent. Iron and coal, minerals on which civilization and commerce so greatly depend, are abundant and widely distributed. Petroleum and natural illuminating gas are found in the Alleghany mountains and the Coast range. Gold, silver and quicksilver are found chiefly in the Western highlands; copper and lead, in the vicinity of the great lakes; and zinc, in the Eastern highlands.

American Indians inhabited North America at the time of the explorations in the 15th and 16th centuries. A civilized people preceding these had disappeared from the region which now constitutes the United States, as the ruins of their habitation bear witness.

Civilized people were found by the Spanish explorers of Mexico. They were conquered by the Spaniards, and gradually disappeared.

The Esquimaux, who are found in the Arctic regions only, are thought by many to be of Mongolian origin. The Indians, also, are said to be of Mongolian descent, and to have come, originally, from Asia.

The white race, the ruling element of the population, are the descendants of Europeans. The inhabitants of Mexico and Central America are the descendants, in part, of Spaniards and native Indians.

The Negroes, originally brought to America as slaves, are fast becoming educated.

Industries—The geographical distribution of the various industies is more noticeable in North America than in the other continents. Foreign commerce, manufactures and fisheries are confined chiefly to the coasts and navigable streams.

Agriculture is carried on, principally, throughout the fertile prairies and river valleys of the interior. Stock-raising is most profitable where there are mild winters and an abundance of grass.

Mining is a leading industry in the highlands.

North America includes Danish America, British America, the United States of America, Mexico, Central America and the West Indies.

Danish America belongs to the Kingdom of Denmark. It comprises Greenland, Iceland and a few smaller islands.

Greenland extends farther north than any other country, or to within about 400 miles of the North Pole. Its area is nearly one-third that of the United States.

The surface of Greenland is covered with ice and snow. The coasts are scored by numerous glaciers. The products are fish, oil and reindeer skins.

The people comprise a few Danes and a number of Esquimaux tribes.

Iceland, which is about half the size of Kansas, is noted for volcanoes, geysers, glaciers and lava fields. Its southern part has a milder climate than its northern, and contains all the settlements.

The Icelanders are generally educated. Their trade is carried on with Copenhagen, the capital of Denmark. Their capital, Reikiavik, contains a college.

THE UNITED STATES.

A Republic, it is the middle division of North America. Alaska, a territory occuping the northwest part of North America, is partly in the North Temperate Zone and partly in the North Frigid Zone. It was purchased from Russia by the United States. Extends from the Atlantic Ocean on the east to the Pacific Ocean on the west, from the Dominion of Canada on the north to the republic of Mexico and the Gulf of Mexico on the south. The distance across the United States from east to west through the center, is about 2,600 miles, and from north to south about 1,600 miles. The shortest distance between the Dominion of Canada and the Gulf of Mexico is about 800 miles.

The high mountains and plateaus of the United States are in the western part. There the mining of gold and silver, and the raising of cattle and sheep constitute the leading occupations of the people.

The plains, prairies, slopes and lowlands extending from the great highland region eastward to the Atlantic Ocean, are remarkable for their fertile soil, which produces immense crops of grain, cotton, fruit and vegetables.

The valleys of the Pacific Slope are noted for their mild, genial climate and their great yield of wheat, fruits and vegetables.

Coal and iron are mined extensively in various parts of the United States.

The variety and importance of the products and industries of this country are due principally to its vast extent of territory and its great diversity of soil, elevation and climate.

Its increase in population, wealth and power is unsurpassed. A century ago there were but thirteen States, containing less than 4,000,000 inhabitants. Now there are forty-five States, six territories and the District of Columbia, with a total population of more than 70,000,000. A territory is under the control of the General Government of the United States, until it is admitted into the Union as a State by Congress. The orignal thirteen States were New Hampshire, Massachusette, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina and Georgia. The first States admitted after them were Kentucky, Vermont, Tennessee, Ohio, Louisiana, Indiana, and Mississippi.

The first colonies in the region now called the United States were established by the English, in Virginiain, 1607; by the Dutch, in New York, in 1613; and by the Pilgrims, in Massachusetts, in 1620.

All were subject to Great Britain from 1664 to 1776, when the thirteen colonies declared themselves free and independent States.

Each State has its own constitution, laws, legislature, and governor, while all the States are united under the constitution and laws of the United States. A State is entitled to be represented in the United States Senate by two senators, and in the House of Representatives by one member for every 154,325 inhabitants.

Every state is entitled to, at least, one member. A territory may send a delegate to the House but he has no vote. There are at present 84 senators and 325 members of the House of Representatives. The states which have the largest representation in the House are New York 34 members, Pennsylvania 28, Ohio 21, and Illinois 20. The states and territories of the United States have legislatures consisting of two houses similar to those of Congress, elected by the people. They are divided into counties, which are, in some cases, subdivided into townships. The divisions of Louisiana corresponding to counties are called parishes. The highest officials in a state are the Governor, Lieutenant-Governor, Secretary of State, Attorney General, and Superintendent of Schools. Towns and villages are collections of houses and inhabitants. Cities have certain rights and privileges not possessed by towns and villages. The affairs of a city are usually controlled by its mayor and aldermen. A county seat is the chief town in which the official business of the county is conducted.

The general government comprises three departments, the legislative, the judicial and the executive. It has control of all matters pertaining to commerce and treaties with foreign countries, the army and navy, the declaration of war, the postoffices and the coining of money.

The legislative power is vested in Congress, which consists of the Senate, (composed of two senators from each State, chosen by the state legislature, for six years. The Vice-president of the United States is the president of the Senate) and House of Representatives. Congress holds its sessions in Washington. The session of Congress begins on the first Monday in December of each year. A law cannot take effect unless passed by both the Senate and the House of Representatives, and approved by the President. If, however, he disapprove a measure which has been passed by both houses of Congress, it may become a law on being repassed by two-thirds of each house.

The judicial power is vested in the Supreme Court, which interprets the laws. The Supreme Court consists of a chief justice and eight associate justices, all appointed for life by the president with the consent of the Senate.

The executive power is vested in the President, whose duty is to execute or enforce the laws. He is elected for four years. The President and Vice-President are elected by a number of electors, called the electoral college, chosen by the people of the States, or their legislatures. Each State is entitled to a number of electors, equal to the whole number of senators and representatives to which it is entitled in Congress. In case of a vacancy in the office of President, it shall be filled by the Vice-president. If there be no Vice-President, the law of 1886 vests the succession in those members of the cabinet who are constitutionally eligible, in the following order: Secretary of State, Secretary of the Treasury, Secretary of War, Attorney-General, Postmaster-General, Secretary of the Navy, and Secretary of the Interior.

MEXICO.

Mexico is a republic, composed of twenty-seven States, a federal district and the Territory of Lower California. It is situated in the North Temperate and the Torrid Zones, and is about one-fourth the size of the United States.

The surface is a high plateau, fringed by a belt of low, narrow coast. Several ranges of the Rocky Mountain System, of which the Sierra Madre is the highest, extend through the country from northwest to southeast.

A chain of volcanoes crosses the highest part of the plateau. The summits of several of these are above the limit of perpetual snow. Vol. Popocatepetl is the highest mountain in Mexico, and, next to Mt. St. Elias, the highest in North America.

The lakes are small and unimportant. Most of them are situated in the Valley of Mexico.

The rivers are short, and, excepting the Rio Colorado and Rio Grande, not navigable above tide-water.

The climate is hot and pestilential along the narrow coast, but mild and healthful in the high interior. In going from Vera Cruz to the City of Mexico, one may, within a few hours, experience nearly every gradation of climate, and find the productions peculiar to each zone. There are but two seasons; the rainy, and the dry.

The vegetable productions comprise mahogany, rosewood, mesquite, various dye-woods, the agave, and cactus. Oranges, lemons, pineapples, olives and bananas are extensively cultivated. Tobacco, corn, sugar-cane, cocoa, beans, coffee, vanilla and the indigo-plant are also grown.

The wild animals of Mexico comprise the grizzly bear, puma or Mexican lion, and coyote. Venomous reptiles and insects are numerous. Cattle, horses and donkeys, in vast numbers, are the principal domestic animals.

The minerals include gold, silver, tin, quicksilver and marble.

The leading industries are agriculture, stock-raising, and mining. Coffee, sugar, cotton, cochineal, vanilla, metals, hides, and ornamental woods are exported. Great progress has been recently made in the building of railroads; but the unsettled condition of the government depresses every kind of industry.

The people consist chiefly of mixed races. About one-tenth are Creoles, or descendants of Spanish colonists. Spanish is the language of the country.

Mexico, the federal capital, is the metropolis. It is in the Valley of Mexico, elevation about 7,400 feet above sea level.

Guadalaxara and Puebla are manufacturing centers.

Vera Cruz is the chief Atlantic seaport.

Acapulco and Guaymas are the principal ports on the Pacific Coast of Mexico.

CENTRAL AMERICA.

Central America forms the most southern part of North America. It comprises five republics, and the British colony of Balize.

The surface resembles that of Mexico, being a high plateau situated between low coasts. The climate, however, is hotter and more moist, and its vegetation more luxuriant.

It contains several volcanoes. Destructive earthquakes are of frequent occurrence.

The principle products are coffee, dye-woods and sugar. Gold, silver and coal are found in the highlands.

The inhabitants are chiefly meztizos and Indians. The white people are mainly of Spanish descent. There are many European merchants and planters in Balize and Costa Rica. The language of the country is Spanish.

Guatemala, the largest city of Central America, is the chief commercial port.

The West Indies comprise two chains of islands, extending southeast from the coast of North America.

The Bahama Islands, about 600 in number, are low, coral formations. Their climate is warm and healthful.

The sponge fisheries constitute the chief industry.

Oranges, lemons and pine-apples are the principal fruits. Salt is obtained from the lagoons of Turk's Island, by evaporation.

Nassau, the capital and commercial port, is situated on Providence Island.

The Greater Antilles comprise the islands of Cuba, Hayti, Jamaica and Porto Rico. Their surface is mountainous; their climate and productions are those of tropical regions. The population is made up of Spaniards, Creoles and Negroes.

Cuba exports sugar, molasses, coffee, fruits, tobacco and cigars. Its forests contain ebony, mahogany and rosewood.

Havana, the capital, is the center of a vast commerce. It is an important sugar market.

Matanzas also is an important city in Cuba.

The Island of Hayti comprises two independent republics, Hayti and Santo Domingo. The people and their rulers are Negroes.

Port au Prince is the capital of Hayti; and Santo Domingo of Santo Domingo.

Jamaica yields allspice, in addition to the products which are similar to those of the other islands. Rum is the principal export. Turtle-fishing is important.

Kingston is the capital.

Porto Rico contains many large and fertile plains.

The Lesser Antilles extend from Porto Rico to the mouth of the Orinoco River.

SOUTH AMERICA.

South America was discovered by Columbus in 1498, near the mouth of the Orinoco. The early Spanish discoverers found an Indian village near Lake Maracaybo, built over the water on piles. As it reminded them of Venice, they called it Venezuela. which means Little Venice.

Balboa, in 1513, crossed the Isthmus, and was the first man who saw the Pacific Ocean from the coast of the Western Continent; but long years before this, the ancient Peruvians had lived there. They had built strong cities, fine temples, great aqueducts, and splendid roads and bridges, ruins of which still remain. Peru was invaded by the Spaniards, under Pizarro, who cruelly treated the natives, destroying their cities and plundering their temples.

South America was thus conquered and settled by Spaniards, except Brazil, which was settled by Portuguese, and Guiana, which was settled by British, Dutch and French.

About 300 years afterward the people of the countries of South America (except Guiana) declared themselves independent of Spain and Portugal.

Simon Bolivar was the most distinguished general and patriot of South America. He was called the "Liberator," also the "Washington of South America."

South America is the Southern part of the Western Continent.

Its area is nearly twice that of the United States. In shape it is a triangle, which tapers to a point toward the south. The coast line has but few indentations.

Like North America it has mountain ranges in the west and east and a vast plain in the center.

The Andean Plateau, the main axis of the continent, extends along the entire western coast. It supports parallel ranges, which constitute the Andean System. Its high peaks are always covered with snow. The highest measured peak is Mount Aconcagua, which is about 24,000 feet in height. The most celebrated volcano is Cotapaxi.

The plains of South America cover about half its area. The llanos of the Orinoco are treeless plains. During the rainy season they become a vast inland sea. With the disappearance of the water comes a profusion of tropical vegetation, which quickly withers under the intense heat of the sun.

The largest lakes in South America are Maracaybo and Titicaca. The latter is 12,000 feet above the sea level.

The Amazon is the largest and one of the longest rivers in the world. Its course is nearly along the Equator. Its highest source is within 70 miles of the Pacific Ocean. At its mouth the river is nearly 200 miles wide. Its current and the freshness of its water are perceptible 200 miles out at sea.

The soil is fertile in nearly all parts of the continent. The southern part, however, is barren, rocky and desolate.

The climate along the seacoast is generally warm, except in the south. In the interior of the lowland plains, the heat is almost intolerable.

The banks of the Amazon produce a wonderful variety of ornamental woods, such as mahogany, rosewood, vegetable-ivory and tortoise-shell wood. The India rubber, cacao, and cocoa-palm trees are abundant.

The lowlands abound in wild grasses, and on the mountain slopes are found the cinchona tree and many kinds of medicinal plants.

The chief cultivated plants are coffee, sugar-cane, cotton, tobacco, indigo, manioc and spices.

Minerals.—South America is rich in minerals. A large part of the silver now in use in the world was obtained from the Andes Mountains. Gold is mined in Columbia and Brazil.

Industries.—The chief industries of the inhabitants of South America are herding, agriculture and mining.

BRAZIL.

The Empire of Brazil, the largest country of South America, is the only monarchy in the New World.

It comprises the eastern plateau and the basins of the Amazon and the La Plata. The northern and western parts are low, swampy, and, during the rainy season, completely inundated.

Near the coast, the valleys are rich and well cultivated.

The greater part of the country has a tropical climate.

Coffee, cotton, sugar, tobacco, rice, grain, tropical fruits, nuts and spices are raised in abundance.

The leading industries are cattle-raising and agriculture.

The natives live in the interior. The ruling people are the Portuguese, or their descendants.

Rio Janeiro, the capital, is the largest city in South America. Its chief exports are coffee and India rubber.

Bahia is the center of the diamond trade.

The Andes Republics comprise the United States of Columbia, Ecuador, Peru, Bolivia, and Chili, occupying the mountainous region along the coast of the Pacific Ocean.

The coast is very steep, affording few harbors.

The surface is rugged. The high plateaus are barren, but the mountain sides and the valleys afford pasturage, and yield grain and other products.

This region is subject to earthquakes, and it contains some of the most celebrated volcanoes in the world.

The governments are republican in form, modeled after our own, but they are subject to frequent revolutions.

Bogota, although within four and a half degrees of the Equator, has a climate of perpetual spring, due to its altitude of nearly 9,000 feet. Its wet seasons are our spring and autumn; its dry seasons, our summer and winter. It is warmest in February, and coldest in December. Grain is sown twice a year. Most of the houses are built but one story high, owing to the frequency of earthquakes. There are, however, many large, splendid buildings.

Panama, on the isthmus, is the largest and most important city. It is connected by railroad with Colon, or Aspinwall. Its climate is tropical and unhealthy.

Quito, the capital of Ecuador, is situated on a very high plateau, surrounded by volcanoes.

Guayaquil is the chief commercial city.

Lima, a few miles from the coast, is the capital of Peru. Its port is Callao.

Arequipa was several times destroyed by earthquakes.

La Paz is the capital and largest city of Bolivia.

CHILI.

Chili is the most powerful and enterprising of the Spanish-American republics.

It is the same in extent from north to south as the United States from east to west—about 2,600 miles.

It is situated on the western slope of the Andes and extends from the Bay of Africa to Cape Horn.

Along the coast are numerous islands, which are rich in guano and niter.

Its climate is temperate and moist.

The people are chiefly of Spanish origin. They are active, industrious and intelligent.

Santiago is the capital. Valparaiso is the largest commercial city on the west coast of South America.

The Argentine Republic is a broad and level country, comprising most of the pampas.

The people are engaged in herding and in preparing dried beef, hides, tallow and horns, for export.

Buenos Ayres, the capital and largest city, has an extensive commerce.

Paraguay and Uraguay resemble the Argentine Republic in surface, products and the occupations of the people.

Montevideo, the capital of Uruguay, is an important commercial city.

Asuncion is the capital of Paraguay.

Venezuela lies almost entirely within the basin of the Orinoco. Its climate is tropical.

The people are engaged in cattle-raising and agriculture. Hides, meat, tallow, coffee, cocoa, cotton, sugar and dyewoods are exported.

Caracas is the capital. It has frequently suffered from earthquakes.

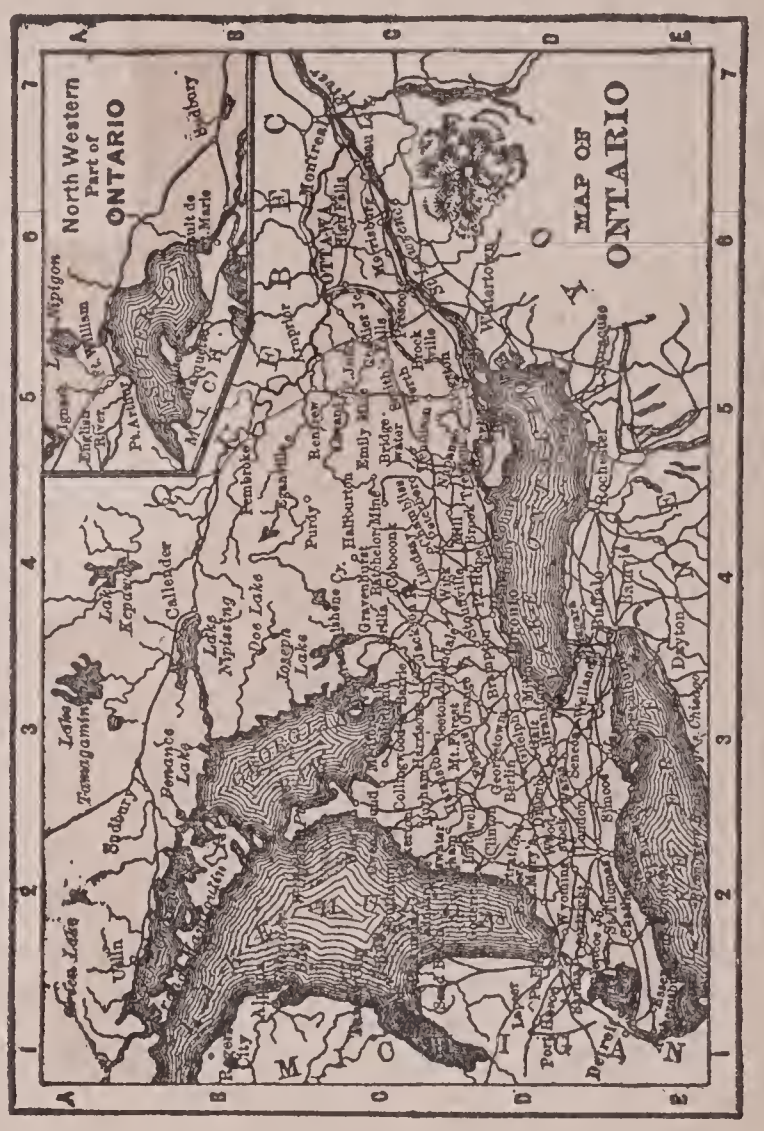
Guiana embraces three colonies—British, French and Dutch. Its products are like those of Venezuela.

Cayenne is the capital of French Guiana, Georgetown of British Guiana, and Paramaribo of Dutch Guiana.

DOMINION OF CANADA.

The Dominion of Canada embraces the provices of British Columbia, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia and Prince Edward Island, besides several territories and districts. Its area about equal to that of the United States.

The surface is mostly a vast plain, bordered by a high plateau in the west, on which stand the Rocky mountains and the Cascade range.



A chain of lakes extends from the mouth of the Mackenzie river to the Great Lakes. The St. Lawrence, Nelson and Mackenzie rivers drain the principal basins.

The climate of the Pacific Slope is mild, but elsewhere the winters are of great severity. The summers are short and in the southern provinces hot.

A belt of timber, mostly pine, extends from the Rocky mountains to the Atlantic ocean. The Pacific Slope is covered with forests of fir, the valley of the St. Lawrence contains growths of maple, oak and elm.

The central prairie regions are covered with luxuriant crops of wild grasses, and, where cultivated, yield large crops of grain.

The wild animals comprise the bison, bear, moose, wolf, beaver, otter, ermine, mink and marten, most of which are hunted for their skins. The coast waters abound in seal, cod and salmon.

The minerals comprise gold, silver and coal, which are mined in the west. Copper and iron are found near Lake Superior. Coal is mined in Nova Scotia also.

The chief industries in the eastern provinces are lumbering and fishing. The central regions are agricultural. The uninhabited regions of the north yield valuable furs in great quantities.

Most of the inhabitants are of English descent. In the eastern provinces, however, their are many descendants of the early French settlers.

The government of the dominion is vested in the Governor-General and Parliament. The Governor-General is

appointed by the sovereign of Great Britain. Parliament consists of a Senate and a House of Commons. The members of the Senate are appointed by the Governor-General. The members of the House are elected by the people. Each province has a Lieutenant-Governor and a legislature.

Ottawa is the capital of the Dominion of Canada. It contains magnificent public buildings.

British Columbia, including Vancouver and other islands, is the largest and most mountainous province of the dominion. Its mines of gold and coal are valuable. Lumber, fish and wool are exported.

Victoria, on Vancouver Island, is the capital and metropolis.

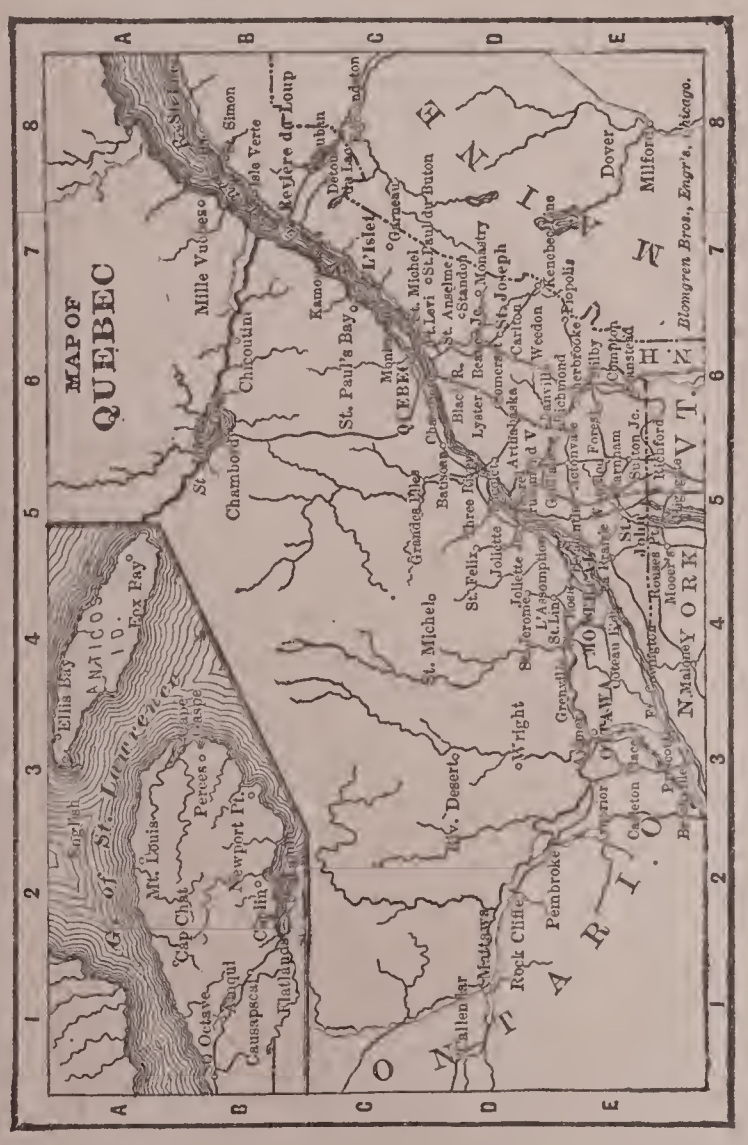
Manitoba is noted for wheat and furs. Steamers ply on the Red River of the North, and on Manitoba and Winnipeg lakes.

Winnipeg, the capital, is the agricultural and commercial center.

Ontario, the most important province, contains nearly one-third the population of the dominion. Grain, fruit and lumber are the principal products. Petroleum, copper and iron are obtained near Lake Superior.

Toronto, the capital of the province, is noted for its manufactures and educational institutions. It is an important railway center and lake port.

Hamilton, situated near the western extremity of Lake Ontario, is an important lake port and manufacturing center.



Quebec is hilly. Its winters are extremely cold; its summers warm, short and foggy.

Its agricultural region is south of the St. Lawrence, and produces good crops of oats, potates and hay. The most valuable export is lumber.

The people of this province, are, chiefly, descendants of early French settlers.

Quebec, the capital, is the oldest city in the dominion. The heights, on which the upper portion of the city is built, are strongly fortified. The fortress of Quebec, next to that of Gibraltar, is considered the strongest in the world. It was, however, captured by General Wolfe during the French and Indian war. The principal business part of the city occupies the low ground.

Montreal, the metropolis, is noted for its magnificent cathedrals, and the tubular bridge across the St. Lawrence river.

New Brunswick is noted for lumber and ship-building.

Fredericton is the capital of New Brunswick.

St. John is the metropolis and largest port.

Nova Scotia has more seacoast than any other province. Ship-building and the fisheries constitute the chief industries. Its coal-fields are extensive. Gold and gypsum are also mined.

Halifax, the capital, has an excellent harbor, and is the chief British naval station in North America.

Prince Edward Island, the smallest province, is the most densely populated. Agriculture and fishing are the chief occupations. Fish and eggs the principal exports.

Charlottetown is the capital.

Newfoundland is noted for its barren soil, cold climate and dense fogs.

The dense fogs which prevail in this latitude are due to the meeting of the cold Arctic Current with the warm waters of the Gulf Stream. During the spring and summer, icebergs and pack-ice are brought down by the Arctic Current, and drift about until melted. It is for this reason that the steamship route between America and Great Britain is one of the most dangerous in the world.

Its cod, salmon and seal fisheries give employment to about nine-tenths of the inhabitants.

St. John's, the capital, is the most easterly city in North America, south of Greenland.

The Territories were formerly owned by the Hudson Bay Company.

NEW HAMPSHIRE.

One of the thirteen original States. Named for Hampshire county, England, called the "Granite State." Ratified United States Constitution June 21, 1788. Union soldiers 33,937. Number counties 10. All elections Tuesday after first Monday in November; number sentors 24; representatives, 321; sessions of legislature biennial; in odd-numbered years, meeting first Wednesday in June. Terms of senators and representatives 2 years each. Number electoral votes 4, congressmen 2; number voters 105,138. Paupers excluded from voting. Dartmouth College, at Hanover, founded 1769. Compulsory education law, common schools excellent, school age 5-15. Legal interest 5 per cent., usury forfeits 3 times the excess. Extreme length N. and S., 181 miles, extreme width 92 miles, area 9,005 sq. miles—5,763,200 acres. Coast line 18 miles. Highest peak Mt. Washington. Largest lake, Winnipiseogee, 74 sq. miles. General elevation 1,200 feet. Isles of Shoals form part of State. The White Mountains occupy the northern portion of the State with unsurpassed scenery. Soil rocky, with small fertile districts. Hay best crop; corn, wheat, oats and ordinary vegetables do fairly with close cultivation. Forests largely exhausted, except at the north. Cleared lands average $\$16\frac{2}{3}$ and woodland $25 per acre. Mica quarried at Grafton, soapstone at Haverhill, Keene and Francestown, granite at Plymouth, Troy, Roxbury, Concord. State ranks high in cotton manufacturing. Climate.—Winter average 24, summer 69 deg. Extremes great in White Mountains. Summer short and hot, with violent storms. Rainfall 41 inches. Frost late in spring and early in fall. Winter

begins in November, cold till May. Snow lies two-thirds of year in mountains, elsewhere 70 to 130 days. Health good. Principal Industries.—Agriculture, manufacture of cotton, woolens, lumber, leather, boots and shoes, etc. Quarrying mica, granite and soapstone. Principal Cities.—Manchester, Nashua, Concord (the capital), Dover, Portsmouth (chief harbor). The harbor of the latter place, Great Bay, never freezes over.

VERMONT.

First State to join original 13. Called the "Green Mountain State." Active in war of 1812. Union soldiers furnished, 33,288. Number counties 14. First railroad built from Bellows Falls to Burlington 1849. State elections biennial, first Tuesday in Sept.; number senators 30, representatives 240. Sessions of legislature biennial, in even-numbered years, meeting first Wednesday in Oct. Terms of senators and representatives, 2 years each. Number electoral votes 4, congressmen 2. Number voters 95,651. Bribers excluded from voting. Colleges 2. School age 5-20. Legal interest rate 6%, usury forfeits excessive interest. N. and S. 149 miles, width 34 to 52 miles, area 9,136 sq. miles, 5,847,040 acres. Highest Point (Green Mountains) about 4,600 ft. Green Mountains run N. and S. through the State and are 3,000 to 4,600 feet high. The surface is generally hilly. All east of mountains drained by the Connecticut, the only navigable river. Small streams abundant. Soil rocky but good in narrow strips on streams. Potatoes best crop. Corn, wheat, oats, hay, hops and buckwheat yield moderately if well attended. Forests remain to considerable extent, but are cut over or culled. Cleared land averages $17.50, and forest land $18 per acre. Dairying profitable. Manganese, copper, iron, gold, black, white, red and variegated marble and slate are found, the marbles in great abundance. State ranks 1st in quarries, 4th in copper. Temperature ranges from 15 deg. below to 95 deg. above, but changes not sudden; winter averages 18 deg. to 33 deg. Summer averages 66 deg. to 75 deg. Summer short. Rainfall greatest at south and east, where it averages 43 inches; in other sections the average is 35 inches. Snows heavy. Frosts early in fall and late in spring. Snow lies 80 to 140 days. Health excellent. Death rate very low, less then 1¾ in the 100. Industries very varied, numbering 2,900. Principal ones, agriculture, dairying, manufacture of flour, furniture, leather, tin, iron and copper ware; and lumber, mining, quarrying and finishing marbles and stones, and maple sugar making.

Principal Cities.—Burlington, Montpelier (capital); Rutland, Brattleboro and Bellows Falls are important and thriving towns and seats of large industries.

KENTUCKY.

Name Indian. Signifies dark and bloody ground, because the state was the hunting and battle ground of the tribes. Called "Corn Cracker State." Louisville founded 1780. Admitted as a State June 1, 1792. State furnished 7,000 troops in war of 1812, and 13,700 in Mexican war. Won great credit in latter. Neutral at beginning of civil war. State the scene of continuous cavalry raids during the war, and some sharp battles at Perryville, Richmond, etc. Put under martial law 1864. Civil government restored 1865. Union soldiers furnished, 75,760. Number counties 118. State elections biennial, first Monday in August, in odd-numbered years. Number senators 38, representatives 100, sessions of legislature biennial in even-numbered years, meeting last day of December, holds 60 days. Term of senators 4 years, of representatives 2 years. Number electoral votes 13, number congressmen 11, number voters 376,221. Bribers, robbers and forgers excluded from voting. Number colleges 15, public school system framed 1838, good schools, school age 6-20 years. Legal interest 6 per cent, by contract 10 per cent, usury forfeits excess over 10 per cent. Extreme length E. and W. 350, width 179 miles, area 40,000 sq. miles, 25,600,000 acres. River frontage 832 miles, navigable water ways 4,120 miles. Soil fair, except in the famous "Bluegrass region," extending for 40 or 50 miles around Lexington, and one of the most beautiful sections on the globe. Natural wonder, Mammoth Cave, greatest in the world. Kentucky ranks high as an agricultural and stock state. Staple crops, corn, wheat, tobacco, oats, barley, hemp, rye and vegetables, fruits do fairly. Famous for thoroughbred horses and cattle. Mules and hogs largely raised. At the east in the mountains are immense forests of virgin oak, poplar, ash, chestnut, elm, walnut, cucumber and other valuable timber trees. Coal, marbles, minerals, oil, stone, etc., also abound. Iron deposits of immense magnitude are known to exist. Cleared land averages $20 and woodland $5 per acre. The average of the former is raised materially by the high prices, often $100 or more per acre in the bluegrass section. Mountain lands rich in timber and minerals and not without agricultural value rate $2 to $5 per acre. The state ranks first in tobacco, and fourth in malt and distilled liquors. Climate variable, favorable to health and agriculture, healthfulness not surpassed. Thermometer ranges from 5 deg. below zero to 98 above, rarely greater extremes are known. Temperature averages, summer 75 deg., winter 38 deg., rainfall 50 inches. Snows fall, but disappear in a few days. Sleighing only for a day or so. Winters moderately long. Malaria very rare, except on the Ohio and Mississippi rivers. Chief Cities—Louisville, Frankfort (capital), Covington. Lexington, former capital, founded 1776. Newport connected with Covington by bridge.

TENNESSEE.

"Big Bend State." First settled 1754. Became a part of North Carolina 1777. Organized as the State of Franklin 1785, but again became part of North Carolina 1788. Ceded to United States by North Carolina 1789. Admitted as State June 1, 1796. Capital, Nashville. First railroad, part of N. & C., 1853, Nashville to Bridgeport. Seceded June 8, 1861. Re-entered Union 1866. Number counties 96. State, congressional and presidential elections, Tuesday after first Monday in November, number senators 33, representatives 99, sessions biennial, in odd-numbered years, meeting first Monday in January; holds 75 days. Terms of senators and representatives 2 years each. Number electoral votes 12, number congressmen 10, number voters 571,244, native white 240,939, foreign white 250,055, colored 80,250, non-payers of poll-tax excluded from voting. Legal interest 6 per cent., by contract any rate, usury forfeits excess of interest and $100 fine. Schools fair. Miles railroad 2,166. Slaves 1860, 275,519. Extreme length E. and W. 430 miles, width 110 miles. Area 41,750 sq. miles, 26,720,000 acres. Mountainous at E. where Apalachians separate State from North Carolina. Soil fair, except in central basin, where it is very productive. State abounds in coal, iron, fine marbles and building stones, copper and other minerals. Possesses one of the finest areas of forest in the Union. Principal timbers, walnut, oak, poplar, ash, hickory, etc. Staple products, mules, hogs, peanuts, corn, wheat, cotton, vegetables of all kinds, potatoes, tobacco, hemp, flax, broom-corn, iron, copper, coal, marbles, etc. Ranks second in peanuts and third in mules. Resources but little developed, 5,000 sq. miles of coal field, with 3 to 7 workable veins. Cleared land averages $12.50, forest $5 per acre. Grape growing pays. Climate one of healthiest in world. Mild and pleasant, and owing to varying elevation very diverse. Snow light and lays briefly. Ice rarely more than a mere film in thickness. Average temperature winter 38 deg., summer 75 deg. Extremes seldom occur. Rainfall 45 to 47 inches. Air bracing. Chief Cities—Nashville (capital,) Memphis, Chattanooga, Jackson, Knoxville. Industries chiefly agricultural, mining, lumbering and iron making.

NORTH CAROLINA.

One of the thirteen original States. Called "Old North State," "Fur State," and "State of Turpentine." Discovered by Lord Raleigh, 1584. Settled by English, 1650. State seceded May 21, 1861. Forts, etc., seized by state troops. Coast section scene of sharp fighting during civil war. State re-entered Union June, 1868. Number of counties, 96. All elections Tuesday after first Monday in November. Number of senators 56, representatives 120, sessions biennial, in odd-numbered years, meeting Wednesday after first Monday in January, hold 60 days. Terms of senators and representatives 2 years each. Number electoral votes 11, number congressmen 9. Convicts are excluded from voting. Public school system adopted, 1840, at present over 2,000 public schools in operation; school age 6–21; separate schools for whites and blacks. Legal interest rate 6 per cent., by contract 8, usury forfeits interest. Rate of tax less than 50c. on $100. Greatest length E. and W. 453 miles; greatest width, 185 miles, area, 52,240 square miles, or 33,433,600 acres, less area water surface. Coast line 423 miles with many harbors. Much forest yet remains. Swamps extensive, most noted of them, the Great Dismal, north of Albemarle sound, contains 148,000 acres. Small streams abundant, water powers numerous; corn best crop, tobacco largest product, other staples are orchard products, sweet

potatoes, rice, wheat, oats, peanuts, cotton, hay and vegetables in the order named. North Carolina ranks first in tar and turpentine, second in copper, third in peanuts and tobacco, and fourth in rice. Has rich deposits of gold and the baser minerals, stone, slate, coal, marble, mica. Excellent fisheries. Natural resources but slightly developed. Ample opportunities for homes, enterprise and capital. Cleared land averages $10 and woodland $5 per acre, and much of excellent quality in the market below this average. Stock thrives. Scenery varied, ordinary, picturesque and grand. Wheat harvested June. Corn ripe in September. Climate is varied, warm and moist in low sections; cool and dry in mountains, with all intermediate conditions. Average winter temperature, 49 deg., summer 78 deg. to 79 deg. Frosts light and seldom come till the end of fall. Rainfall, including some snow in mountains, 45 deg. Health good. Chief Cities.—Wilmington, Raleigh (capital), Charlotte contains assay office, New Berne. Industries.—Agriculture principal occupation. Fishing, manufacture of turpentine and lumber, mining, etc. Number of different industries, 3,800. Number boats engaged in fisheries, about 3,000. Copper mined, 1,640,000 lbs.

SOUTH CAROLINA.

One of the thirteen original States, "Palmetto State." Revolutionary record, brilliant. English seized the territory, but were thrashed at Cowpens and Utah Springs and penned up in Charleston. First railroad in United States using American locomotive, 1830. First State to secede, November, 1860. Sumter bombarded April 12-13, 1861. Ordinance of secession repealed September, 1865, and slavery abolished. Re-entered the Union June, 1868. Number counties, 34. State, congressional and presidential elections, Tuesday after first Monday in November. State senators 35, representatives 124, sessions annual, meeting fourth Tuesday in November. Term of senators 4 years, of representatives 2 years. Number electoral votes 9, number congressmen 7. Insane, inmates of asylums, alms-houses and prisons, United States army and duelists excluded from voting. Number colleges 9, school age 6-16, school system fair. Legal interest 7 per cent., by contract, any rate. Slaves, 1860, 402,406. Greatest length 280 miles, greatest width 210 miles. Area 30,170 square miles, or 19,308,800 acres. Coast line 212 miles. Principal river Savannah, navigable 130 miles. Magnificent water power, undeveloped. Soil from medium to very rich. Forests extensive and valuable. Land, cleared or uncleared, averages $7 per acre. Rice and cotton best crops. All other cereals, as well as vegetables, fruits, grasses and fiber crops grow well. Phosphate beds enormous. Gold, mica, marbles of all colors, building stones found in large quantities. Turpentine, tar, lumber and oysters largely produced. Stock thrives. Gold mines in Abbeville, Edgefield and Union counties. First mint deposits, $3,500, in 1827. White and variegated marbles found in Spartenburgh and Laurens counties. Climate: Temperature ranges 15 to 96 degrees F. Averages, summer 82 degrees, winter 51 degrees. Average rainfall 48 inches, decreasing to the south. Health good. Epidemics rare and confined to seaports. Resort for consumptives. Changes slight and infrequent, frosts rare. Chief cities: Charleston, port of entry, seat of a Catholic bishop. United States customs districts at Beaufort, Charleston and Georgetown. Capital Columbia. Principal industries: Agriculture, mining, fishing, quarrying, lumbering, turpentine and tar making, and phosphate digging.

VIRGINIA.

One of the thirteen original states. Called the "Old Dominion," and "The Mother of Presidents." First English settlement in America, 1607. Active in Revolution and subsequent steps toward founding the Union, Virginia won the title of "First of the States." British burnt Norfolk 1779, and Richmond 1781. Yorktown surrendered October, 1781, practically vanquishing England. State seceded May 7, 1861, and capital of Confederacy moved to Richmond. Scene of gigantic energies of the war. Bull Run, the Wilderness, Cold Harbor, Fredericksburg, Port Republic and many other famous battles were fought on Virginia soil. Lee surrendered at Appomattox April 9, 1865, ending the war. State returned to the Union Jan. 26, 1870. Number of counties, 100. Sessions of legislature biennial, in odd-numbered years, meeting first Wednesday in December; holds 90 days. Term of senators 90 days, representatives 2 years. Number electoral votes 12, Congressmen 10. Lunatics, idiots, convicts, duelists, United States army and non-taxpayers of capita-

tion tax excluded from voting. Number colleges 7, schools 4,502, school age 5-21, school system fair. Legal interest 6 per cent, by contract 3 per cent, usury forfeits all over 6 per cent. Slaves, 1860, 490,865. Greatest length east and west, 445 miles, greatest width, 190 miles, area 40,125 square miles, 25,680,000 acres. Coast line, 130 miles, tidal frontage, 1,556 miles. The state is rich in iron, gold, salt, coal, marble, slate, zinc, lead, stone, timber and other natural resources as yet little developed. Much good farming land is untilled. Cleared land averages $10 and woodland $6 to $7 per acre. The opportunities for homes and enterprise are inviting. All cereals, tobacco, peanuts (state ranks first in this crop and second in tobacco), fruits,

grapes and vegetables are extensively raised. Stock thrives. Climate varies, is genial and healthful, cool in mountains and warm in lowlands in summer. Winters are seldom severe. Winter averages 44, summer 78 degrees. Rainfall, including snow, averages 44 inches, being heaviest on the coast. Chief Cities.—Richmond (capital), Norfolk, Petersburg. Hampton Roads one of best harbors on coast. Seven ports of entry. Industries.—Half population engaged in agriculture, balance in quarrying, shipbuilding, lumbering, the trades, iron working, meat packing, tanning.

WEST VIRGINIA.

Originally part of Virginia. Called "Pan Handle State." History up to 1861 same as that of Virginia. Refused to secede April 22, 1861. F. H. Pierrepont elected governor June 20, 1861. Admitted as state June 20, 1863, and Wheeling made the capital. Capital changed to Charleston, 1870. Moved again to Wheeling, 1875, and to Charleston again in 1884. Union soldiers furnished 32,-068. State advanced rapidly in wealth. Number counties 54. Governor and state officers elected quadriennially, and legislature every two years, on second Tuesday in October, number senators 26, representatives 65. Sessions biennial, in odd-numbered years, holding 45 days. Terms of senators 4 years, of representatives 2 years. Number electoral votes 6, congressmen 4, number voters, 169,161, native white 123,569, colored 6,384. Insane, paupers, and convicts not voting. Flourishing free school system, school age 6–21. Legal interest 6 per cent, by contract 6, usury forfeits excess of interest. Slaves, 1860, 18,371. Topography, Area, Soil, Products, Etc. — Length N. and S., 241 miles, greatest width 158 miles, area 24,645 sq. miles, 15,772,800 acres. Surface mountainous with fertile valleys, the Alleghanies principal range. Some high peaks. Scenery fine and much visited by tourists. Western part hilly, but gradually descends from 2,500 feet above the sea toward the Ohio river, where the is elevation 800 to 900 feet. Much of the state is virgin forest densely clothed with oak, walnut, poplar, ash, and other timber trees. Mineral springs abound. The soil, where not mountainous, is excellent. Mineral wealth, including coal, oil, iron, salt, is prodigal. Staple products include the minerals named, sheep, hogs, tobacco, wheat, corn, dairy products, fruit, wine, lumber. Petroleum extensively produced. The state ranks fifth in salt and coal, seventh in buckwheat, iron and steel. Cleared land averages $22.50. Climate—Moderate, average temperature, winter 30 deg., summer, 70 deg. Elevation reduces heat, which in the valleys averages 76 to 78 deg. Average rainfall 42 to 45 inches. Health is excellent. Chief Cities.—Charleston (capital), Wheeling, Parkersburg, Martinsburg. Chief Industries—Sixty per cent. of laborers engaged in agriculture, balance in mining, iron making, lumbering, manufacturing, etc.

ALASKA.

Discovered by Vitus Behring, 1741, and became Russian territory by right of discovery. Purchased by United States for $7,000,000, 1867, as a deed of gratitude to Russia for her course in civil war. Has paid five per cent on investment ever since, and promises to become the source of enormous mineral, fur, agricultural and timber wealth. Governor appointed by the president of the United States.

Extreme length north and south 1,200 miles, width 800 miles, area (estimated) 531,409 sq. miles. Yukon, chief river, 80 miles wide at mouth, navigable 840 miles, length about 1,300 miles; coast line 5,000 miles. Fertile land. Good oats, barley and root crops are raised without difficulty. Rich grass land in the valley of the Yukon. Timber abundant. Yellow cedar best, being of great value for boat-building. Berries plentiful. Fine quality of white marble is on Lynn channel. Coal, amber and lignite on Aleutian Islands, the best coal being on Cook's inlet. Gold, silver, copper, cinnabar and iron are found; sulphur abundant. Noted for fur-bearing animals, the

chief of which are beaver, ermine, fox, marten, otter, squirrel and wolf. The main revenue is the fur seal, taking of which is regulated by law. The walrus is of value in furnishing ivory and oil. Whales, cod, herring and halibut and salmon are abundant.

Climate.—Pacific coast modified by Pacific Gulf Stream and long summer days. Temperature at Sitka averages winter about that of Washington, D. C. Rainfall copious and foggy weather common on coasts and islands. Sitka, one of the rainiest places in the world outside the tropics: annual precipitation 65 to 90 inches; rainy days 200 to 285 in year.

Chief Cities.—Sitka, seat of Bishop of Greek church, and headquarters of governor. Fort St. Nicholas, Cook's inlet, Fort St. Michael and Norton's sound are other main settlements. Harbors at Port Clarence, Michaelooski and Captain's harbor.

Industries.—Fishing, canning, trapping and mining.

ALABAMA.

Name Indian, means "We rest here." Mobile founded by French 1702. Admitted to Union Dec. 14, 1819. Seceded Jan. 11, 1861. Montgomery made capital of confederacy Feb. 4, 1861. Subsequently removed to Richmond, Va. State re-entered Union July 14. Number counties 66. State elections biennial first Monday in

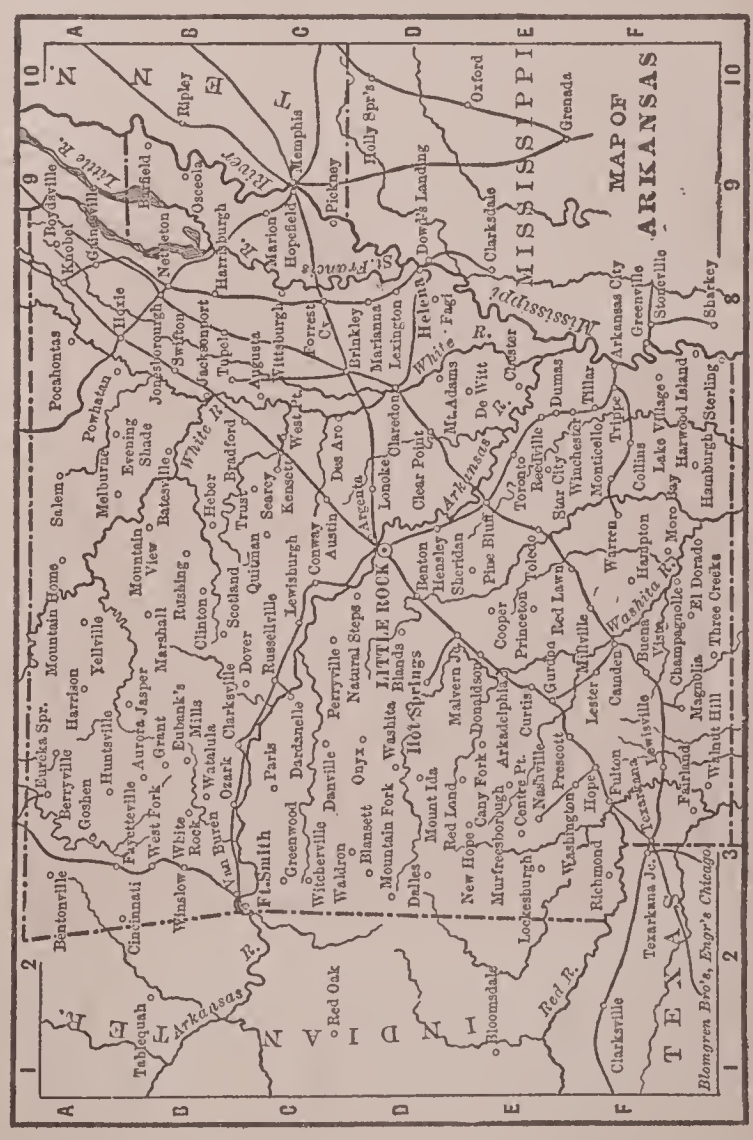
Aug., number senators 33, representatives 100, sessions of legislature biennial in even-numbered years, meeting Tuesday after second Monday in Nov. and holding 50 days, term of senators 4 years, of representatives 2 years.

Number of electoral votes 10, congressmen 8. Indians, idiots, convicts of crime excluded from voting. Number colleges 4, school age 7–21, schools good. Legal interest 8 per cent, usury forfeits entire interest. Slaves, 1860, 435,080. Length N. and S. 332 miles, width average 155 miles, area 51,540 sq. miles, 32,985,600 acres. Surface at N. E. rugged, extending into Alleghany mountains, gradually descends, forming rolling prairies at center of state and flat low stretches at the south. Sea coast 68 miles. Mobile bay best harbor on the gulf, 1,600 miles of navigable waterways. Has fair soil and is enormously rich in coal, iron, lime and sandstone, timber and various minerals. Middle section soil fertile and varied. Coast region sandy, but by proper cultivation prolific. Vegetable farming near Mobile very successful. Cotton, mules, iron, coal, sugar, rice, tobacco, hay, corn, oats, staple products. Fruits are a good crop. Much forest remains. Cleared land averages $7, and woodland $4 per acre. State ranks fourth in cotton, fifth in mules and molasses, sixth in iron ore and sugar, seventh in rice. Climate.—Temperature mild, cold at north, warm at south, average winter 47 deg., summer 81 deg., July hottest month, range of thermometer 20 to 95 deg., sometimes for a day reaching 102 deg. Rainfall 50 inches. Snow or ice very rare. Trees bloom in Feb. Chief Cities.—Montgomery (capital), Huntsville, Selma, Mobile. Leading Industries.—Agricultural and kindred pursuits, mining, iron making, lumbering, etc. Number of industries 2,070.

ARKANSAS.

"Bear State." Settled 1685. Arkansas Territory organized, 1819. Admitted as a state June 15, 1836. Slavery acknowledged. Seceded May 6, 1861. Considerable fighting during war, but no great battles. Re-entered Union 1868. Number counties, 75. Miles railroad, 1,764. State elections biennial, in even-numbered years, first Monday in Sept.; number senators 31, representatives 94, sessions of legislature biennial, in odd-numbered years, meeting second Monday in Jan., holding 60 days; term of senators 4 years, of representatives 2 years. Number of electoral votes 7, congressmen 5, voters 182,977, native white, 129,675, foreign white 6,475, colored 46,827. Idiots, Indians, convicts not voting. Number colleges 5, school system progressive; school age 6-21. Legal interest rate 6 per cent, by contract 10 per cent, usury forfeits principal and interest.

Length N. and S. 240 miles, average breadth 212 miles, area 53,845 sq. miles, 44,460,800 acres. The scenery varied and charming. Hot Springs (temperature 140 deg.) great natural wonder and famous for medicinal properties. Soil varies, but greater portion exceptionally rich and suited to all crops, especially fruits, berries and gardening. State especially favorable to agriculture. Magnificently timbered. Pine, oak, cypress, cedar, hickory, walnut, linn, locust chief growths. Cleared land averages $10 and woodland, $3 per acre. Coal exists on the Ashe river, iron in the Ozarks, salt near Ouachita. Oilstone near Hot



Springs, kaolin in Pulaski county. Staple products, corn, wheat, cotton, tobacco, oats, sweet potatoes, mules, tar, turpentine, lumber, etc.

Climate.—Genial. Temperature ranges 15 deg. to 95 deg., on rare occasions going to 100 deg. Averages win-

ter, 45 deg.; summer 80 deg. Rainfall 44 inches, heaviest in S. E.; lightest in N. W. Health unsurpassed, especially in N. W.

Chief Cities.—Little Rock (capital). Hot Springs.

Industries.—2,100 in number. Chiefly agricultural.

ARIZONA.

Explored 1526. Mineral wealth found; no important settlements effected because of hostile natives. Organized as territory, Feb. 24, 1863. Number counties, 11. All

elections Tuesday after first Monday in November; number senators, 12; representatives, 24; sessions of legislature biennial, in even-numbered years, meeting first Monday in January, holds 60 days; terms of senators and representatives, 2 years each; voters, 20,398; native white, 9,790; foreign white, 8,256; colored, 2,352. School age, 6–21. Legal interest rate, 10 per cent.; by contract, any rate; no penalty for usury. School endowment in lands reserved very large.

Extreme length, north and south, 378 miles; width, 339 miles; area, 113,929 square miles; 72,914,560 acres. Volcanic peaks reach an altitude of 10,500 feet. Southern portion a plain, dipping occasionally below sea level, and rising only to a very moderate elevation (200 to 600 feet usually), mountains numerous, highest point San Francisco, 11,056 feet. Colorado river navigable 620 miles. Flows between perpendicular walls cut in solid rock, in places 7,000 feet high. Agriculture possible only in the valleys or where irrigation is practicable. Soil in valleys and bottoms very rich and prolific. Wheat, barley, potatoes, hay, corn, onions are staple field crops; corn follows wheat or barley, giving two crops yearly. Oranges and all semi-tropical fruits do well where water is obtainable. Cattle-raising extremely profitable. Desert tracts of considerable area are found. Timber grows on the mountains, foot-hills and along the streams. The varieties include pine and cedar on mountains, cottonwood, walnut and cherry on streams. Size of trees fair, and quantity large. Abundant mineral wealth exists, which can be developed with profit, owing to completion of railways. Nearly all mountain ranges contain gold, silver, copper and lead. Superior quality of lime found near Prescott and Tuscon, beds of gypsum in San Pedro valley, remarkable deposits of pure, transparent salt near Callville. Territory ranks second in production of silver.

Climate exceptionally healthful, and generally mild, except in mountains; temperature averages 38 deg. winter, 73 deg. summer; much warmer at south, the thermometer reaching occasionally 115, and rarely falling below 35 deg. in winter. In central portion heat seldom exceeds 88 deg. to 90 deg.; snow in mountains, but melts soon. Rainfall on Gila 6 inches, in foothills 28 inches. Heaviest in July and August.

Chief Cities.—Tucson; Prescott, the capital.

Leading Industries.—Mining, grazing, agriculture, lumbering, smelting, etc.

CALIFORNIA.

"Golden State." First settled at San Diego, 1768. Gold discovered 1848. Rush of immigration set in 1849. State constitution, without the preliminary of a territorial organization, framed Sept. 1849. Admitted as a state

Sept. 9, 1850. Number counties, 52. Miles railroad, 2,911. Governor and state officers elected quadrennially, and legislature every two years, number senators 40, representatives 80, sessions of legislature biennial, in odd-numbered years, meeting first Monday after Jan. 1, holds 60 days, term of senators 4 years, of representatives 2

years. Number electoral votes 8. congressmen 6, white voters 262,583. Idiots, Indians, convicts and Chinese excluded from voting. School system very fair, school age 5–17. Legal interest 7 per cent., by contract any rate.

Extreme length N. and S., 725 miles, width 330 miles, area 155,980 sq. miles, 99,827,200 acres. Coast line over 800 miles. San Francisco Bay (40 miles long, 9 wide), magnificent harbor. Yosemite in the Sierras, one of the greatest natural wonders of the world and the greatest marvel of the state, where scenery is always grand. Mt. Whitney 15,000, highest peak. Very rich agriculturally and in minerals. Soil warm, genial and rich. Two crops may be raised in season. Irrigation neccessary in parts and almost always desirable. Wheat most valuable crop, all cereals, root crops and grasses do well, corn, barley, grapes, fruit, nuts, silk, hops and oats staples. Mineral deposits include gold, silver, iron, copper, mercury, coal, stones, salt, soda, etc. Ranks high as a fruit-growing state, fruits of temperate climates, sub-tropical fruits and nuts, grapes, north to 41 deg., olives, etc., grow to great perfection. Fine sheep-raising country. Ranks first in barley, grape culture, sheep, gold and quicksilver, third in hops, fifth in wheat and salt. Noble forests of redwood and other valuable growths. Land runs from $1.25 to several hundred dollars per acre. Improved land averages $30, unimproved $7.50 per acre. It is the paradise of the small farmer. Plenty of room for men with a little something to begin on.

Climate varies with elevation and latitude. Mild and pleasant on coast. Average temperature at San Francisco in summer 62 deg., winter 50 deg. Warmer in interior, reaching at times 100 deg. Rainfall variable, from 7 to 50 inches at San Francisco. Average at S. 10 inches. Melting snow from mountains replaces rainfall. Frosts rare.

Chief Cities.—San Francisco port of entry, regular line of steamers to Australia, Panama, Mexico, China and Japan, Sacramento (capital), Oakland, San Jose, Stockton, Los Angeles, U.S. navy yard at San Pablo Bay.

Leading Industries. — Agriculture, stock-raising, fruit culture, mining, lumbering, etc.

CONNECTICUT.

"Wooden Nutmeg State." One of the original 13 States explored by the Dutch settlers of Manhattan Island, 1615, by whom settlement was made, 1633, at Hartford. The State furnished a very large quota of men to the Revolutionary armies. Yale college founded 1701. Union soldiers furnished, 55,864. Number counties, 8. State elections yearly on same date as presidential election. Elects 24 senators, 249 representatives, 4 congressmen and 6 presidential electors. State senators hold 2 and representatives 1 year. Legislature meets yearly on Wednesday after first Monday in January. Convicts and persons unable to read not permitted to vote. School system superior, includes 3 colleges with 160,000 books in libraries. School age 4 to 16 years. Legal interest 6 per cent. No penalty for usury. Area, 4,845 sq. miles, average length 86 miles, average breadth 55 miles; seacoast 110 miles. Surface less rugged than the other New England States. Mountain range terminates in this State in a series of hills. The coast is indented by numerous bays and harbors. Soil, except in valley, light and stony. Corn, oats, hay, wheat, tobacco and vegetables are the staple crops. Cleared land averages $40 and woodland $30 per acre. No valuable timber remains. Stone extensively quarried. Valuable iron mines exist. Climate moderate and healthy, average temperature, summer 72 deg. and winter 28 deg. Occasionally the thermometer sinks below zero, considerable snow falls, summers warm. Rain fall, including snow, about 47 inches, Chief Industries. —Manufacture of hardware, clocks, silks, cotton, rubber, carpets, woolens, arms, sewing machines and attachments,

dairying, quarrying, agriculture, etc. Total number of different industries, 4,488. Principal cities.—Hartford, capital and noted for banking and insurance business. New Haven, "City of Elms," seat of Yale College. Bridgeport, noted for manufacture of fire-arms and sewing machines. Waterbury, important manufacturing city. Fairfield, Middleton, New Haven, New London and Stonington are ports of entry.

COLORADO.

"Centennial State." John C. Fremont, "The Pathfinder," crossed Rockies 1842–44. First American settlement near Denver, 1859. Mining begun. Organized as territory Feb. 1861. Indian troubles 1863–4. Union soldiers furnished 4,903. Admitted as a State Aug. 1, 1876. Number counties 39. All elections Tuesday after first Monday in Nov., number senators 26, representatives 49, sessions biennial in odd-numbered years, meeting first Monday in Jan., limit of session 40 days, term of senators 4 years, of representatives 2 years. Number electoral votes 3, congressmen 1, voters 93,608, native white 65,215, foreign white 26,873, colored 1,520. Convicts excluded from voting. Number colleges 3, school system fair endowment, school age 6-21 years. Legal interest 10 per cent., by contract any rate.

Length E. and W. 380 miles, width 280 miles, area 103,845 sq. miles, 66,460,800 acres, three-fifths unsurveyed. Rocky mountains traverse state N. and S. with 3 ranges having many peaks more than 13,000 feet high. Fine

grazing grounds. Scenery grand beyond words. Much rich soil along streams and wherever irrigation is possible. Cereals do very well. Corn, wheat, oats, hay, staple crops. Cattle, sheep and hog raising safe and profitable. Dairying pays, as does gardening. Timber resources moderate.

Mountains fairly clothed with pine and other trees. Mineral wealth inexhaustible. State ranks first in silver, fourth in gold. Iron, soda, coal, copper, lead, stone, mica, etc., exist in large deposits.

Climate.—Dry and range of temperature comparatively small. Winters mild, summers cool. Average temperature winter 31 deg., summer 73 deg. Rainfall, mainly in May, June and July, averages 18 inches. On mountains winters severe, accompanied by heavy snowfall; violent winds common; fogs unknown. Health unsurpassed.

Chief Cities.—Denver, capital and metropolis, and contains assay office; Leadville, Silver Cliffs, Colorado Springs, State University at Boulder; Agricultural College at Fort Collins; School of mines at Golden City.

Leading Industries.—Mining, smelting ores, agriculture, grazing, etc.

DAKOTA.

Named for Dakota Indians. First settled at Pembina 1812. Organized as territory March, 1861. First legislature met, 1862, at Yankton. Immigration became active 1866. Railroad building active and systems mammoth in their scale. All elections Tuesday after first Monday in Nov. Number senators 12, representatives 24, sessions biennial, in odd-numbered years, meeting second Tuesday in Jan. and holding 60 days. Terms of senators and representatives 2 years each. Legal interest rate 7%, by contract 12%, usury forfeits excess. School endowments, when the territory shall become a State, magnificent.

Average length N. and S. 451 miles, width 348 miles, area 149,112 sq. miles, 95,431,680 acres. Indian reservations principally west of Missouri river, 42,000,000 acres, one-seventh good farming land. Surface high, level plain, 950 to 2,600 feet above the sea, traversed by ranges of lofty hills, which at the S. W. reach an elevation of 7,000 feet in the Black Hills. The Missouri river traverses the territory diagonally from N. W. to S. E., and is navigable. Lakes are numerous, especially in the north and east. Devil's Lake is semi-salt. Other large lakes. Soil is very rich and peculiarly suited to wheat, which is the staple crop. Corn, oats, grasses and potatoes do well. Fruits not a good crop. Cattle, and especially sheep-raising, favored and growing industries. Timber scarce, except along the streams and in some of the hills. Gold and silver extensively mined. Black Hills very rich in precious minerals. Ranks fourth in gold output. Good coal west of the Missouri. Not much developed as yet. Deposits of tin of enormous value exist in Black Hills. Price of land $1.25 to $20 per acre (latter improved).

Climate.—Temperature ranges from 32 deg. below zero to 100 deg. above. Averages, winter 4 to 20 deg., summer 65 to 75 deg. Winters at north severe, with heavy snow. Moderate at the south. Air clear, dry and free from malaria. Cold not so penetrating as in moister climates. Springs late and summers of medium length. Rainfall 19 in., chiefly in spring and summer.

Chief Cities—Fargo, northern metropolis; Pierre, Bismarck, Yankton and Sioux Falls important centers.

Industries—Almost entire laboring population engaged in agriculture and mining.

The Territory of Dakota has been (1889) admitted as two States—North and South Dakota. A line drawn east and west, about half way between the north and south lines, is the dividing line.

DELAWARE.

One of the thirteen original states. "The Diamond State." Settled by Swedes 1658, who bought from the Indians. Took vigorous part in the Revolution. Was a slave state. Slaves 1860, 2,000. Union soldiers furnished 12,284, the biggest percentage of any state. Contains three counties. All elections Tuesday after first Monday

in November; number senators 9, representatives 21, legislature meets in odd-numbered years first Tuesday in January, holds 21 days; term of senators 4 years, of representatives 2 years; number of electoral votes 3, number congressmen 1. Idiots, insane, paupers and criminals excluded from voting. Colleges at Newark and Wilmington; school age 6–21, schools fair; legal interest rate 6, usury forfeits the principal. Length north and south nearly 100 miles, width 10 miles at north, 36 at south. Area 1,950 square miles, or 1,248,000 acres. Available area large. Northern portion rolling, but free from large hills. Scenery beautiful. Southern portion level and sandy, with frequent cypress marshes. Coast low and swampy with lagoons separated from sea by sand-beaches. Streams flow into Chesapeake and Delaware bays and are small. Tide reaches to Wilmington. The soil is good and the state of cultivation superior. Cleared land averages $45 per acre, and wood-land $40. Staple crops, corn, wheat, peaches, berries, garden vegetables, sweet potatoes. Iron is found, but is no longer worked. Climate mild. Tempered by sea breezes. Average temperature, winter, 32 deg. to 38 deg.; summer, 72 deg. to 78 deg. Rainfall 48 to 50 inches. At north health excellent. Some malaria on the low lands bordering the swamps at the south. Chief Cities.—Wilmington, Dover (capital). Newcastle. Breakwater protecting Delaware Bay at Cape Henlopen, greatest work of its kind in America, cost the United States $2,127,400, and was over 40 years in course of construction. Industries.—Agriculture and kindred pursuits, manufacture of flour, lumber, cotton, iron, steel, leather, etc., shipbuilding, fishing, canning and preserving. Total number different industries, 750.

FLORIDA.

Named for its flowers, "Peninsula State." Pensacola taken from England by Gen. Jackson during war of 1812. Entire province ceded to United States 1819. Organized as a Territory 1822. Admitted as a State March 3, 1845. State seceded Jan. 10, 1861, re-entered Union July 4, 1868. Number counties 39, miles of railroad 1,324. All elections Tuesday after first Monday in November. Number senators 32, representatives 76. Sessions of legislature biennial, in odd-numbered years, meeting Tuesday after first Monday in January, holds 60 days. Term of senators 4, of representatives 2 years. Number electoral votes 4, congressmen 2. Idiots, insane, criminals, betters on elections and duelists excluded from voting. Schools fair, school age 4-21. Legal interest 8%, by contract any rate. Slaves, 1860, 61,745. Four-fifths of Florida is in the peninsula, which is about 350 miles N. and S., and 105 miles E. and W. Remainder is the narrow strip along the Gulf, 342 miles E. and W., and 10 to 50 miles N. and S. Area 59,268 sq. miles, 37,931,520 acres. 21st State in size. State surrounded by sea except on north. Coast line over 1,200 miles. Good harbors rare, mostly on

Gulf. The northern section is a limestone formation, affording a fair soil. In the middle section are found tracts of great richness. At the south the soil, when dry or reclaimed, is inexhaustible. Shores very low, frequently not two feet above tide water. Coral growth at south continues. Surface dotted with lakes. The staple

products are corn (most valuable crops), sugar, molasses, rice, cotton, oats, tobacco, vegetables of all kinds, peaches, oranges and all tropical and semi-tropical fruits, cocoanuts, lumber, fish, oysters, etc. Poultry and stock raising are successful. Cleared land averages $12, woodland $3, swamp $1, and school land $1.25 per acre. Much forest remains. Timber chiefly pine, of moderate size, free from undergrowth. Game abounds. Climate superb. No snow. Frosts rare at north, unknown at south. Temperature ranges 30 deg. to 100 deg., rarely above 90. Winter averages 59 deg., summer 81 deg. Breezes blow across from Gulf to Atlantic, and vice versa, temper the heat and keep air dry and clear. Average rainfall 55 inches, chiefly in summer. Chief Cities.—Key West, good harbor and naval station; Jacksonville, St. Augustine (oldest town in United States), Tallahassee (capital), Pensacola. Principal Industries.—Almost the entire laboring population is engaged in agriculture and fruit growing. Fishing for fish and oysters and lumbering largely followed.

GEORGIA.

One of the thirteen original states, named for King George II. of England, called the "Empire State of the South." Originally a part of South Carolina and claimed by Spain. Active in the Revolution, suffering badly from devastation by English. Severe wars with Creeks and Cherokees settled by treaties 1790 and 1791. State seceded

January 19, 1861. Many hard fought battles during civil war, including Atlanta, etc. Re-entered Union 1870. Number counties 137, state elections first Wednesday in October; number senators 44, representatives 175; sessions biennial in even-numbered years, meeting first Wednesday in November, hold forty days. Terms of senators and representatives two years each. Number electoral votes 12, number congressmen 10. Idiots, insane, criminals, and non-taxpayers excluded from voting. Number colleges 7; State University at Athens organized 1801; public schools excellent, school age 6-18. Legal interest 7 per cent, by contract 8 per cent, usury forfeits excess of interest. Population, 1880, 1,542,180, male 762,981, female 779,199, native 1,531,616, white 816,906, Indians 124. Greatest length N. and S. 321 miles, greatest width 255 miles, area 58,980 square miles or 37,747,200 acres, exclusive of water area. Surface diversified. At the north are the Blue Ridge, Etowah and other mountains. In the southeast is the Okefinokee swamp, 150 miles in circumference. Coast irregular and indented, shore line about 500 miles, three seaports. Mountain streams are rapid, with picturesque cataracts and immense basins. The chief falls are the Tallulah, in Habersham county; Toccoa, in the Tugalo, 180 feet high; Towaliga, in Monroe county, and the Amicolah, which descend 400 feet in a quarter mile. Corn, wheat, oats, cotton, rice, sweet potatoes, tobacco, sugar and melons, chief agricultural staples. Fruit, both temperate and semi-tropical thrives. Stock flourishes. Wool-growing important. Gold is extensively mined. Coal, iron, marble exist. Cleared land averages $8 and woodland $5.50 per acre. One-fourth area heavily timbered with yellow pine of great value for lumber turpentine, etc. Climate.—At the north mild and extremely healthy, hot in the lowlands. Range of temperature 30 deg. to 105 deg. Average, winter 49 deg., summer 82 deg. Rainfall averages 55 inches. Chief Cities.—Savannah, Brunswick, and St. Mary's ports of entry, and Columbus. Atlanta, capital. Principal Industries.—Three-fourths population engaged in agriculture. Remainder in various pursuits. Manufacturing important. Raw materials becoming more abundant and cheap.

IDAHO.

Gold discovered in 1880 in Oro Fino creek. Organized as Territory March, 1863. Number counties, 14. All elections, Tuesday after first Monday in November. Number senators, 12, representatives, 24. Sessions of legislature, biennial, in even-numbered years, meeting second Monday in December, holds 60 days. Terms of senators and representatives, 2 years each. Voters, 14,795, native white, 7,332, foreign white, 4,338, colored, 3,126. School age, 5-21 years. Legal interest rate 10 per cent., by contract, 18 per cent.; usury forfeits three times excess of interest. Miles railroad, 811.

Topography, Area, Soil Products, Etc.—Length, 140 to 490 miles, width 45 to 286 miles. Area, 84,290 square miles, 53,944,600 acres. Surface table land and mountains. About one-twelfth is arable and one-tenth more grazing land. One-third barren, but may be reclaimed by irrigation. Many lakes are found, as well as numerous water powers. Forests estimated at 9,000,000 acres. The soil, where water can be had, is fertile. Wheat, oats, rye, barley, potatoes and hay are good crops, and dairying and stock-raising profitable. Gold is found in quartz veins in Idaho, Boise and Alturas counties, silver in Owyhee county. Some of the mines very rich. Wood river district on southern slope of Salmon River mountains, at head waters of Wood or Malad river, gives promise of valuable mining operations, chiefly placers. Coal in vicinity of Boise City. Territory ranks sixth in gold and silver.

Climate severe, with heavy snows in mountains, on plains less severe, but cold and bracing. In the valleys it is milder, with moderate snowfall. Summers cool and pleasant. Temperature averages 20 deg. in winter, 70

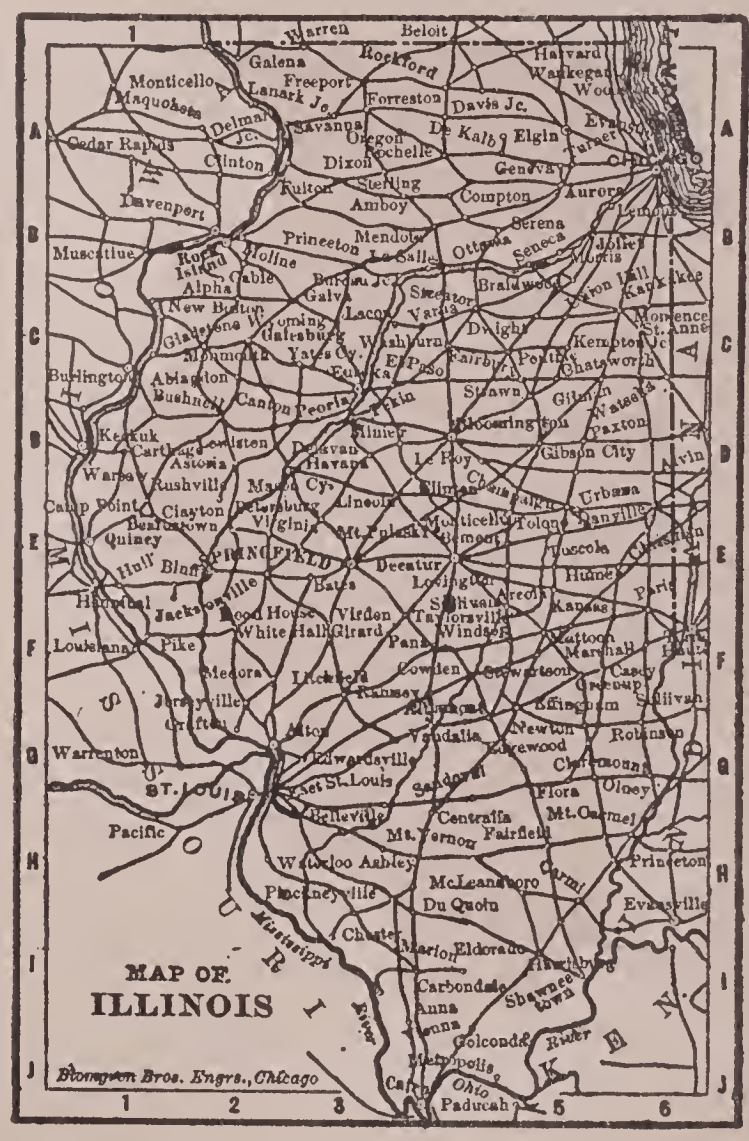
deg. in summer. Rainfall small in the Rocky and Bitter Root mountains, and very light at the N. and W.

Chief Cities.—Boise City (capital), Florence, Silver City.

Leading Industries.—Mining, grazing, agriculture, smelting and lumbering.

ILLINOIS.

Name derived from Illini tribe of Indians, meaning Superior Men. Called "Prairie State" and "Sucker State." Fort Dearborn (Chicago) massacre, 1812, by Pottawatomies. Admitted as State, 1818. Capital moved to Springfield, 1836. Soldiers in Mexican war, 5,000; Union soldiers, 259,092. Number counties, 102. All elections, Tuesday after first Monday in Nov.; number senators, 51; representatives, 153; sessions biennial, in odd-numbered years, meeting first Monday in Jan., term of senators, 4 years, representatives, 2 years. Number electoral votes, 22; congressmen, 20; number voters 796,847; convicts excluded from voting. School system excellent; number colleges, 28; school age, 6–21. Legal interest, 6 per cent.; by contract, 8 per cent.; usury forfeits entire interest. Extreme length N. and S., 386 miles; extreme width, 218 miles. Average elevation, 482 feet; elevation at Cairo, 340 feet; highest point, 1,140 feet in northwest portion. Area, 56,000 sq. miles, 35,840,000 acres; miles of navigable water-ways, 4,100. Frontage on Lake Michigan 110 miles. Among first agricultural States of Union. Staple crops, corn, wheat, oats, rye, barley, broomcorn, vegetables, hay, potatoes, etc. Fruits and grapes do well at south. Yield of all crops cultivated, large. Coal area, two-thirds State. First coal mined in America at Ottawa; quality moderately fair. Considerable forest of hardwoods at south on hills and in bottoms. Superior quality limestone on Fox and Desplaines rivers; lead, most important mineral; Galena in center of richest diggings in N. W. Rich salt wells in Saline and Gallatin counties, 75 gallons brine making 50 lbs. salt. State ranks first in corn, wheat, oats, meat packing, lumber traffic, malt and distilled liquors and miles railway; second in rye, coal, agricultural implements, soap and hogs; fourth in hay, potatoes, iron and steel, mules, milch cows and other cattle. Cleared land averages $28, and woodland or raw prairie, $18 per acre. Climate healthful as a rule; subject to sudden and violent changes at north. Temperature ranges from 30 deg. below zero to 101 deg. above. Average temperature at Springfield, 30 deg. winter; 78 deg. summer. At Chicago, 25 deg. winter; 72 deg. summer. At Cairo, 38 deg. winter; 80 deg.



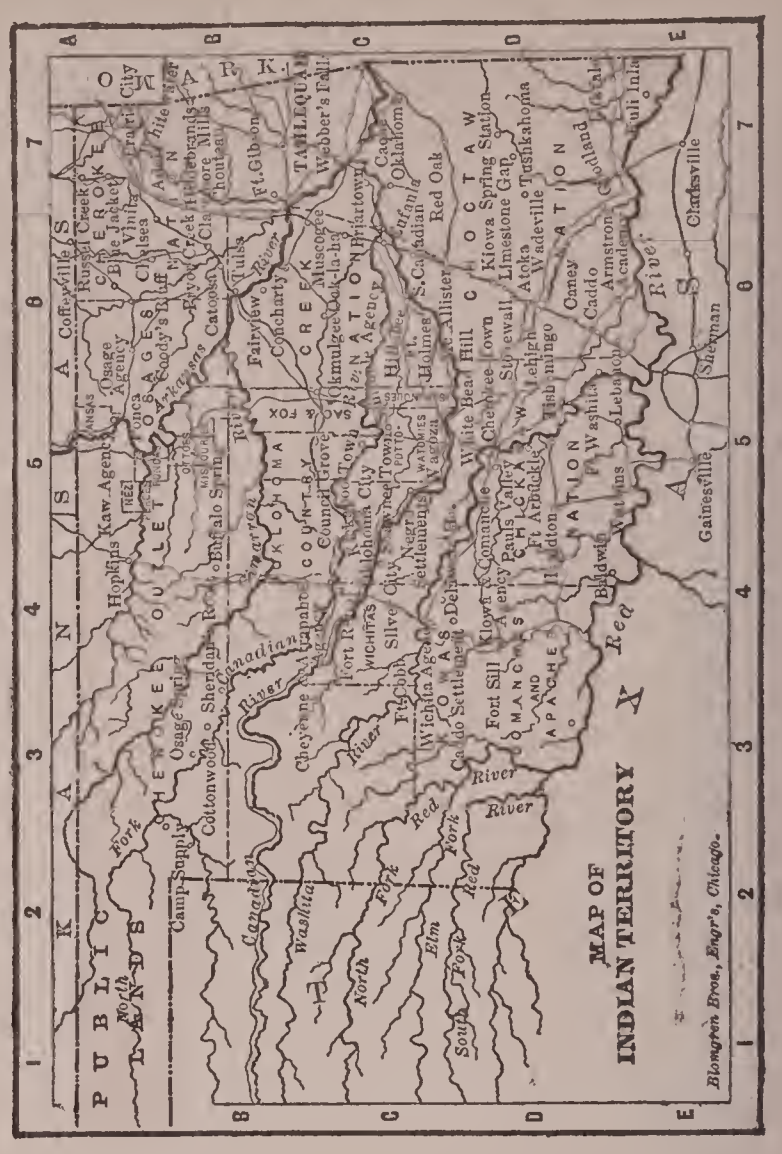
summer. Frost comes last of September. Vegetation begins in April. Rainfall 37 inches. Chief Cities.—Chicago (pop. 1889, 1,200,000), Peoria, Quincy, Springfield (capital). Industries.—Agriculture, mining, stock-raising and manufacturing of all kinds.

INDIANA.

"Hoosier State." Settled at Fort St. Vincents, now Vincennes, in 1702, by French-Canadian voyagers. Admitted as a state Dec. 11, 1816. Sixth state admitted. Soldiers furnished in Mexican war 5,000. Union soldiers 196,363. Number counties 92. All elections Tuesday after first Monday in November; number senators, 50; representatives, 100; sessions of legislature biennial, in odd-numbered years, meet Thursday after first Monday, holds 60 days; term of senators 4 years, of representatives 2 years; number electoral votes, 15; number congressmen, 13; number voters, 498,437. Fraudulent voters and bribers excluded from voting. Number of colleges 15, State University at Bloomington; medical school at Indianapolis, university at Notre Dame, flourishing common-school

system; school age, 6–21. Legal interest rate, 6 per cent, by contract 8 per cent; usury forfeits excess of interest. Extreme length N. and S. 275 miles, width averages 150 miles, area 35,910 sq. miles, 22,982,400 acres. Surface sometimes hilly. No mountains. Hills 200 to 400 feet above the surrounding country. Frontage on Lake Michigan 43 miles. River bottoms wide and unsurpassed in fertility; highlands, when level, rich, black or sandy soil. All crops and fruits of the temperate zone do well both in yield and quality. State highly favored for agriculture and manufacturing. Ranks second in wheat, fourth in corn, hogs and agricultural implements, fifth in coal. Cattle, hogs, sheep, horses, etc., are most successfully raised. Corn, wheat, oats, staple crops. Timber still abundant at south, but in scattered tracts. Coal fields in southwestern portion of state over 7,000 sq. miles, on much of which are 3 workable veins. Kinds of coal, black, cannel and ordinary bituminous, cokes well, superior for gas. Building stones varied and of unsurpassed quality, including the famous Bedford stone. Supply unlimited. Land is cheap, cleared averaging $18, and woodland $14 per acre. In rich section to southwest cleared land $15, woodland $10 to $12. Chances for making homes, comfort and advantages considered, not excelled elsewhere. Iron ore is found.

Climate.—Changeable in winter, but seldom severe; winds from north and west; summers moderately long, and sometimes hot; temperature averages, winter 34 deg., summer 78 deg. Trees blossom in March. Rainfall, 40 inches. Health excellent. Malaria rapidly disappearing from bottoms before proper drainage. Chief Cities.—Indianapolis (capital), contains deaf and dumb, blind and insane asylums; Terre Haute, Evansville, Fort Wayne. Michigan City (lake port). Industries.—Agriculture, mining and manufacturing.



INDIAN TERRITORY.

Set apart for peaceful tribes. Organized 1834, no territorial government. Government in hands of tribes. Also contains Oklahoma and public land strip. Each tribe elects officers, legislatures and courts, and criminals are punished as in the states. No laws for collections of debt. All land held in common, and any Indian may cultivate as much as he wants, but one-quarter mile must intervene between farms. Whites can hold land only by marrying an Indian. School system excellent, pupils educated and supported by the tribes, half entire revenue being set aside for the purpose. Three colleges, 200 schools.

Two-fifths of entire population can read. Extreme length east and west, 470 miles, average length, 320 miles, width, 210 miles, area, 69,991 miles, 44,154,240 acres. Surface vast rolling plain sloping eastward. Valleys timbered heavily with hard woods. South of Canadian river prairies very fertile, valleys rich and productive throughout territory, grass rich and heavy almost everywhere. Corn, cotton, rice, wheat, rye, potatoes are staples. Grazing interests large. Coal is found, but extent unknown. Fur-bearing animals numerous.

Climate.—Mild in winter, warm in summer. Temperature averages 41 deg. winter, 80 deg. summer. Rainfall, at east, 50 inches, center, 36, far west, 22. Health as good as anywhere in Union.

Chief Cities.—Tahlequah, capital Cherokees; Tishomingo, capital of Chickasaws; Tushkahoma, of Choctaws; Muscogee, of Creeks; Pawhuska, of Osages; Seminole Agency, of Seminoles; Pawnee Agency, of Pawnees; Kiowa and Comanche Agency, of Kiowas and Comanches.

Leading Industries.—Agriculture and grazing.

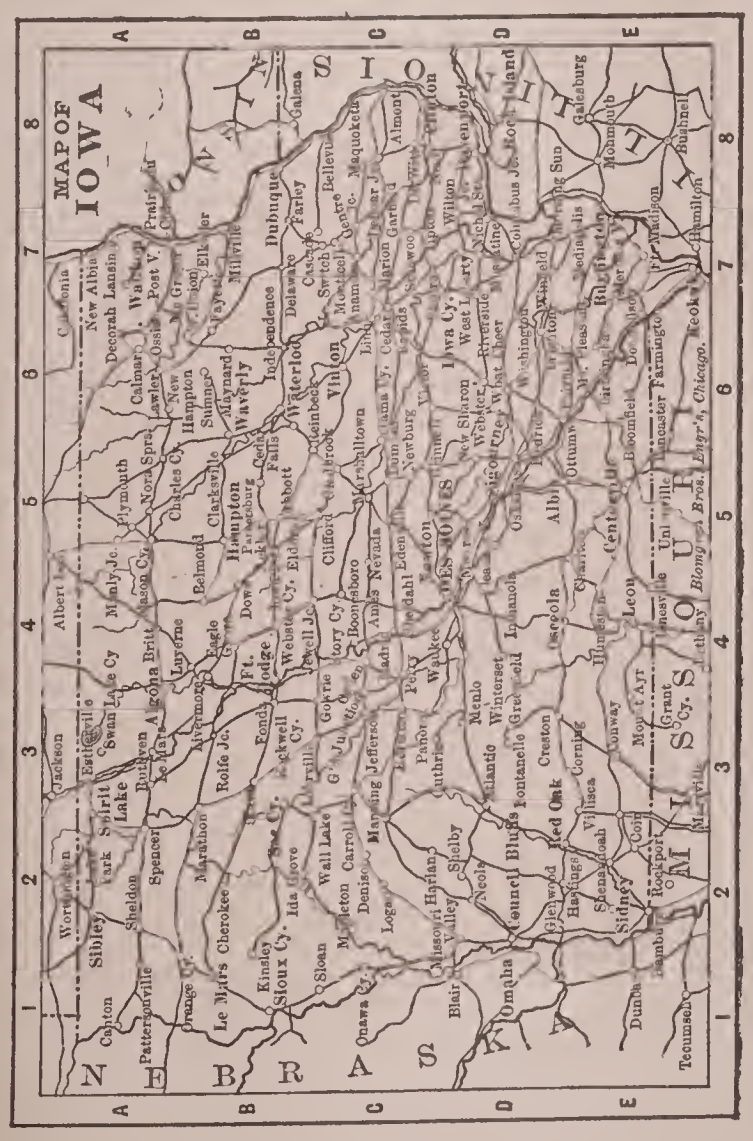
INDIAN AGENCIES.

ARAPAHOE.		OSAGE.	
Agent	$ 900	Agent	$1,600
		Physician	1,200
CHEYENNE.		OTOE.	
Agent	2,200	Agent	1,500
Physician	1,200	Physician	1,000
KAW.		PAWNEE.	
Superintendent	1,600	Clerk	1,200
Physician	1,200	Physician	1,000
KIOWA AND COMANCHE.		PONCA.	
Agent	1,000	Superintendent	1,200
Physician	1,000	Clerk	720

OAKLAND.		QUAPAW.		SAC AND FOX.	
Supt	$1,000	Agent	$1,500	Agent	$1,200
3 Teachers.	600	Physician	1,200	2 Physicians	1,000

IOWA.

"Hawkeye State." Settled first by Dubuque, 1788, a French Canadian, for whom that city is named. First settlers miners of lead. Active immigration began 1833. Iowa territory organized July 4, 1838. Admitted as State 1846. Union soldiers furnished 76,242. Number counties 99. State elections annual, Tuesday after second Monday in October, excepting years of presidential elections, when all elections occur together. Number senators 50, representatives 100, sessions of legislature biennial, in even numbered years, meeting second Monday in January.



Term of senators 4 years, of representatives 2 years. Number of electoral votes 13, congressmen 11, number voters 416,658. Idiots, insane and criminals excluded from voting. Number colleges 19, school age 5-21. School system admirable, endowment liberal. Legal interest rate 6 per cent., by contract 10 per cent., usury forfeits 10 per cent. per year on amount. State has adopted prohibition.

Extreme length E. and W. 208 miles, width 208 miles, area, 55,470 sq. miles, 35,500,800 acres. Surface almost an unbroken prairie, without mountains and with very few low hills. Natural meadows everywhere and water abundant. Many small lakes at north. Highest point, Spirit Lake, 1,600 feet above the sea. Soil superior. Corn, wheat, oats, potatoes, hay, barley, sorghum, rye, staples. Apples unsurpassed in United States; pears, plums, cherries, grapes and berries are excellent crops. Cattle and other stock interests large and thrifty. Dairying attractive. Forest area small—scarcely equal to home requirements. Coal area fair. Other minerals unimportant. Manufacturing active. Improved land averages $20; unimproved, including railroad and government domains, $12.50. State ranks first in hogs, second in milch cows, oxen and other cattle, corn, hay and oats; third in horses; fifth in barley and miles of railway.

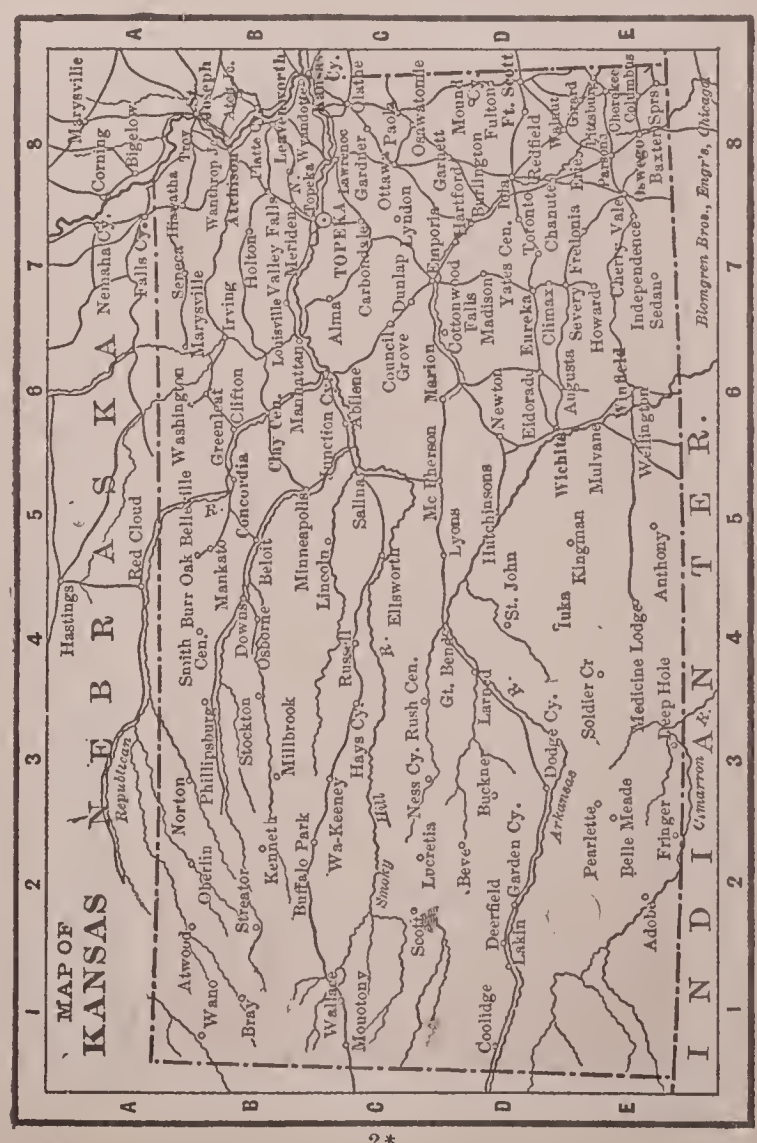
Climate subject to extremes. Winter severe, with sharp north and west winds; summers pleasant. Temperature averages, summer 72 deg., winter 23 deg.; ranges from 10 deg. below to 99 deg. above zero. Rainfall 42 inches. Wheat harvest in August.

Chief Cities. — DesMoines (metropolis and capital). Dubuque, Davenport, Burlington, Council Bluffs. Keokuk, Burlington and Dubuque are United States ports of delivery.

Leading Industries. — Agriculture, stock-raising and manufacturing.

KANSAS.

Name, Indian, means, "Smoky water." Called the "Garden State." Kansas Territory, organized May, 1854. Law known as "Missouri Compromise," forbidding slavery in states formed out of Louisiana purchase north of latitude 36 deg. 30 min. repealed, and question of slavery



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left to the territory. At first it was decided for slavery. Constitution prohibiting slavery adopted July, 1859. Admitted as a state, 1861. Union soldiers furnished 20,149, number counties 95, miles railroad 8,810, first railroad built, 1864, 40 miles long. All elections Tuesday after first Monday in Nov.; senators 40, representatives 125, sessions biennial, meeting second Tuesday in Jan. in odd-numbered years, limit of session 50 days; term of senators four years, of representatives two years. Number electoral votes 9, congressmen 7, voters 295,714. Idiots, insane, convicts and rebels excluded from voting. Number colleges 8, number schoolhouses over 8,000, school age 5-21 years; school system magnificent. Endowment immense. Legal interest 7 per cent., by contract 12 per cent, usury forfeits excess of interest.

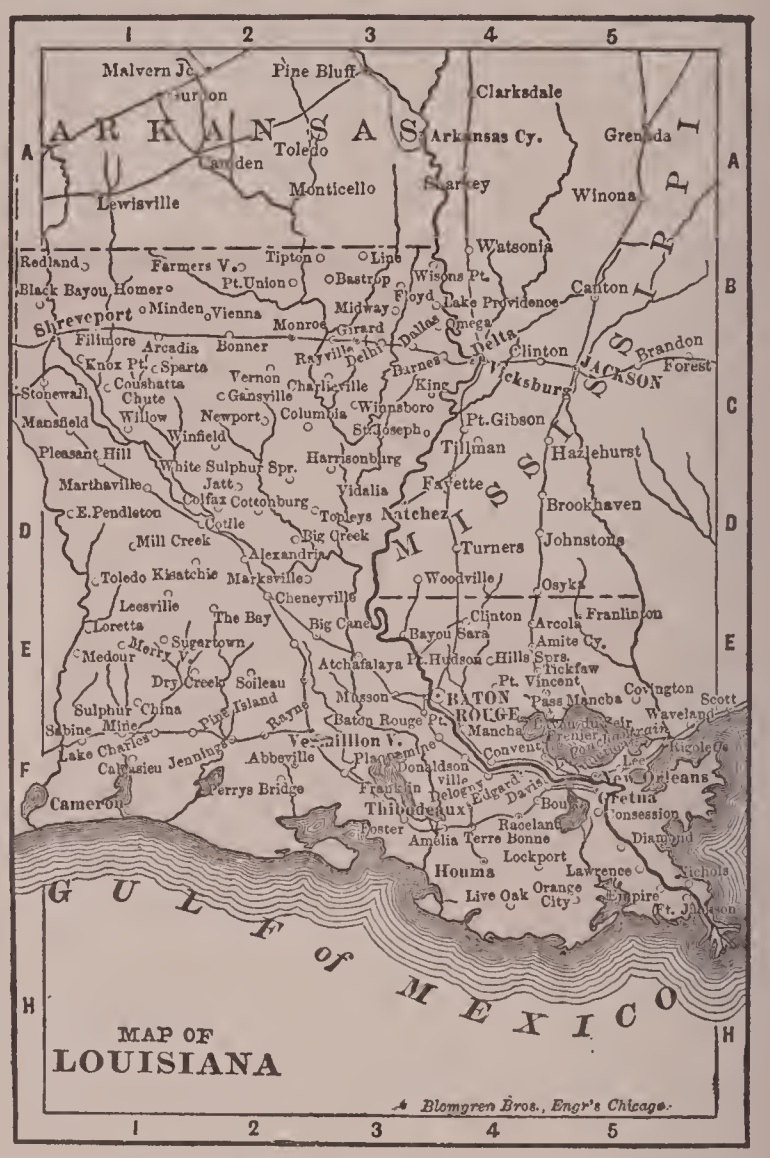
Extreme length E. and W. 410 miles, breadth 210 miles, area 81,700 sq. miles, 52,288,000 acres. No mountains. There is little navigable water. Water powers of fair proportion, irrigation necessary in large sections. Coal area of moderate extent; veins usually thin; quality fair. Soil fine. Corn, wheat, oats, hemp, flax and rye, staples. Castor beans and cotton grown successfully. Soil of prairies deep loam of dark color; bottoms sandy loam. Peculiarly favorable to stock raising. Prairie rich in grasses. Dairying favored. Fruits successful. Forests small. Limestone and colored chalk furnish building materials. Value improved land averages $12 per acre, woodland $15. Manufacturing growing. State ranks fifth in cattle, corn and rye. Climate.—Salubrious; winters mild, summers warm, air pure and clear. Temperature averages winter 31 deg., summer 78 deg., ranges 8 deg. below to 101 deg. above zero; such extremes exceptional. Rainfall averages 45 inches at east, 13 inches at west.

Chief Cities.—Leavenworth, Topeka (capital). State University at Lawrence, state asylums for insane and feeble-minded at Topeka and Ossawattomie; institution for education of the blind at Wyandotte; for deaf mutes, Olathe.

Industries.—Agriculture, stock raising, manufacturing, etc.

LOUISIANA.

Named for Louis XIV. of France. Called the "Pelican State" and the "Creole State." First sugar cane cultivated in United States near New Orleans 1751. First sugar mill 1758. First shipment of cotton abroad 1784. Purchased by the United States, 1803, for $15,000,000, Louisiana admitted as a state under present name, April 8, 1812. In the war with England immediately following, the state made a glorious record, and at the battle of New Orleans, Jan. 8, 1815, humiliated the British and ended the war. Seceded Jan. 26, 1861. Some fighting on the river between boats and forts. New Orleans captured May 1, 1862. 1868, in June, state re-entered Union. Capital, Baton Rouge. Number of parishes or counties 58. Legislature and state officers elected quadrennially, members congress biennially, state elections Tuesday after third Monday in April, number senators 36, representatives 98; sessions biennial, in even-numbered years, meeting second Monday in May, holds 60 days; terms of senators and representatives 4 years each. Number electoral votes 8, congressmen 6, voters 216,787, colored 107,977, native white 81,777, foreign white 27,033. Idiot, insane and criminals excluded from voting. Legal interest 5 per cent., by contract 8 per cent., usury forfeits entire interest. Educational facilities average, slaves 1860, 331,726. Extreme length E. and W. 294 miles, breadth, 248 miles, area 45,420 sq. miles, 29,068,800 acres. Coast line 1,276 miles, very irregular navigable rivers 2,700 miles. Mississippi flows in or on the borders of the state. Bays numerous on coast but harbors indifferent. Many small islands in Gulf. Staple products, sweet potatoes, sugar, molasses, rice, corn, cotton, grasses, oats, etc. All fruits of the semi-tropical climate thrive. State ranks first in

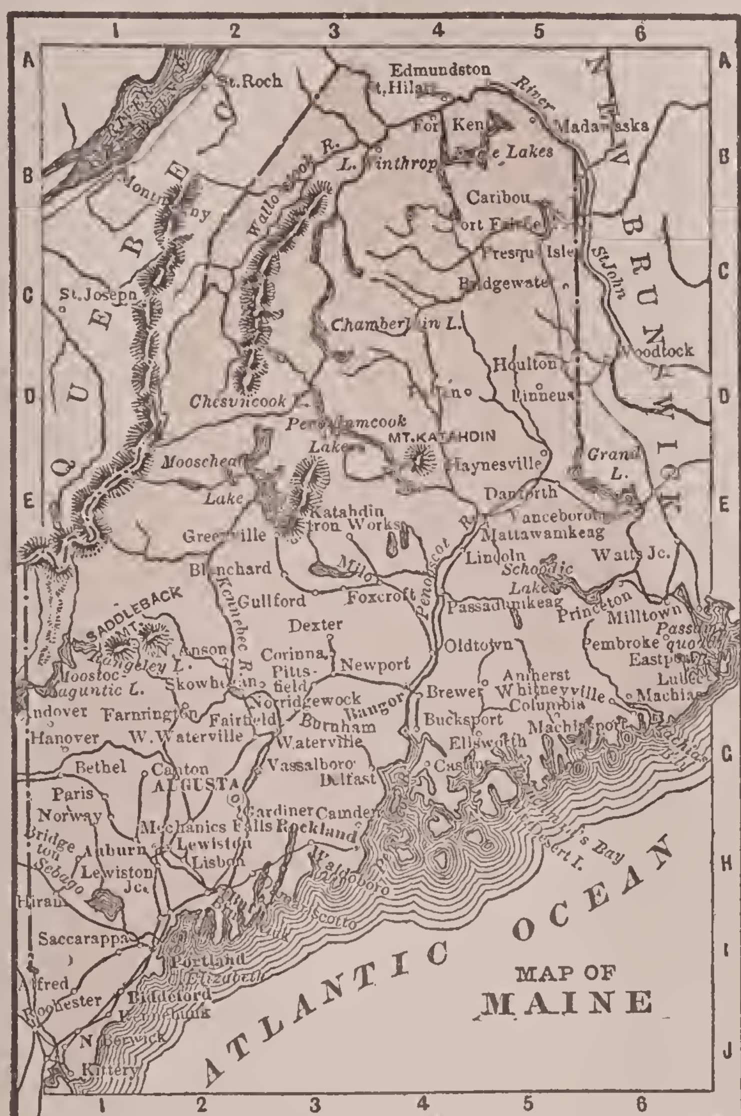


sugar and molasses and third in rice. Forests almost inexhaustible. Timber superior in kind and quality, lumbering important industry. Salt produced on a large scale. Iron discovered. Cleared land averages $12.50, woodland $3 to $4 per acre. Reclamation of marshes very profitable and beginning to be done on a large scale. Moss-gathering profitable and invites more attention. Climate.—Temperature ranges from 40 to 100 deg., average summer 81 deg., winter 55 deg. Rainfall 57 inches, chiefly in spring and summer. Summers long and occasionally hot. Health average. Actual death rate lower than in many northern sections. Occasional yellow fever in the cities. Chief Cities.—New Orleans (port of entry and largest cotton market in the world), Baton Rouge (capital), Shreveport, Morgan City (port of entry). State institution for insane at Jackson; for deaf mutes and blind, Baton Rouge. Industries.—Three-fifths of laboring population engaged in agriculture. Average income of rural population among highest in Union. Number industries 1,600.

MAINE.

Called the "Pine Tree State," or "Lumber State;" originally included New Hampshire; settled by English 1607, by French in 1613. Number counties, 16; Union soldiers, 70,107; miles of railroad, 1,142; State elections second Monday in Sept.; number senators, 31; representatives, 151; sessions biennial in odd-numbered years, meeting first Wednesday in Jan.; terms of senators and representatives, two

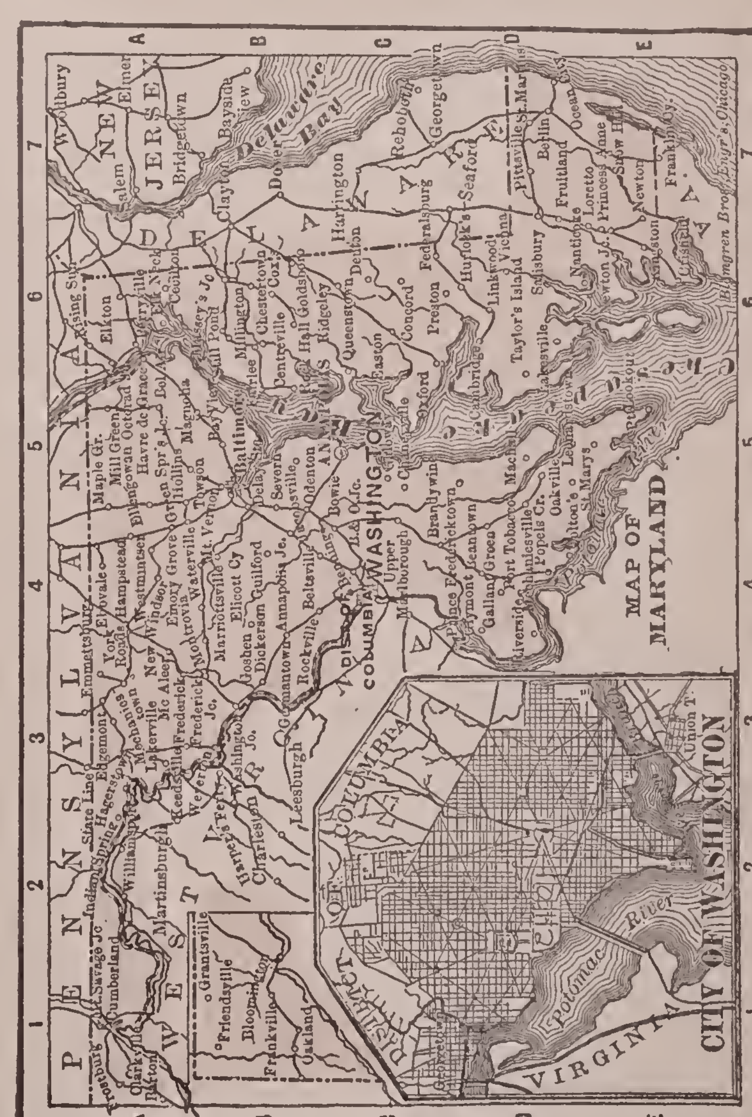
years each. Number electoral votes, 6; congressmen, 4; number voters, 187,323; paupers and Indians not taxed, excluded from voting. Number colleges, 3; system of common, high and normal schools excellent; school age, 4-21 years. Legal rate interest, 6; by contract, any rate.



Extreme length north and south 298 miles, width 210 miles, shore line about 2,480 miles, area 33,056 sq. miles, land 29,885 sq. miles, 21,155,840 acres; 37th of states and territories in size. Surface hilly, mountainous toward center. Highest point, Katahdin, 5,400 feet; largest island, Mount Desert, 92 square miles. Area of lakes and streams, one-thirteenth entire state. The soil is medium only, except on some of the streams, where it is rich. Hay the best crop. Wheat, oats, corn, hops, potatoes, buckwheat and the ordinary vegetables grow. Cattle do fairly, dairying pays. Half the state is forest of excellent timber. Cleared land averages $15 and forest land $14 per acre. Slate, copper, granite are found in large quantities. Winter average 29 deg., summer 67 deg., rainfall 45 inches; snow lies 80 to 130 days. Climate excellent, except for pulmonary troubles. Death rate low. Chief Industries.—Agriculture and kindred pursuits, lumbering, fisheries, $3,620,000 yearly, quarrying, ship building (380 establishments). Principal cities.—Portland (seaport), Lewiston, Bangor, (port of entry), Biddeford, and Augusta (the capital).

MARYLAND.

One of the thirteen original states. Baltimore laid 1730. Federal congress met at Annapolis 1783, when Washington resigned command of the army. Federal constitution ratified April 28, 1778. Fredericktown and other places burned in war of 1812, and Fort McHenry bombarded. First blood of civil war shed at Baltimore April 19, 1861. Legislature opposed war April 26, 1861, but passed resolutions favoring the South. Battle of Antietam Sept. 16 and 17, 1862. Slavery abolished 1864. Union soldiers furnished, 46,638. Number counties, 23. All elections Tuesday after first Monday in Nov.; number senators, 26, representatives, 91; sessions biennial in even-numbered years, meet first Wednesday in Jan. and hold 90 days; term of senators, 4 years; of representatives, 2 years. Number of electoral votes, 8; congressmen, 6. Insane, convicts and bribers excluded from voting. Number colleges 11, school age 5-20, school system fair. Legal interest 6 per cent., usury forfeits excess of interest. Topography, Area, Soil, Products, Etc.—Length east and west 196 miles, width 8 to 122 miles. Area, 9,860 sq. miles. Acreage of state 6,310,400, water surface large. Western and northern sections mountainous and broken. Chesapeake bay almost divides the state. Tide-water coast nearly 500 miles. Chief navigable rivers, Potomac, Susquehanna, Patuxent, Patapsco, empty into the bay. At the west is the Youghiogheny. Soil varies from very poor to very good. Cleared land averages $22.50, and woodland $14 per acre. The average value of latter lowered by mountain sections. Considerable good timber remains. Enormous coal fields west. Copper is found in Frederick and Carroll counties; iron ore in Allegany, Anne Arundel, Carroll, Baltimore, Frederick and Prince George's counties. Great oyster, fish, fruit and vegetable producing state. Oyster beds most valuable in Union.

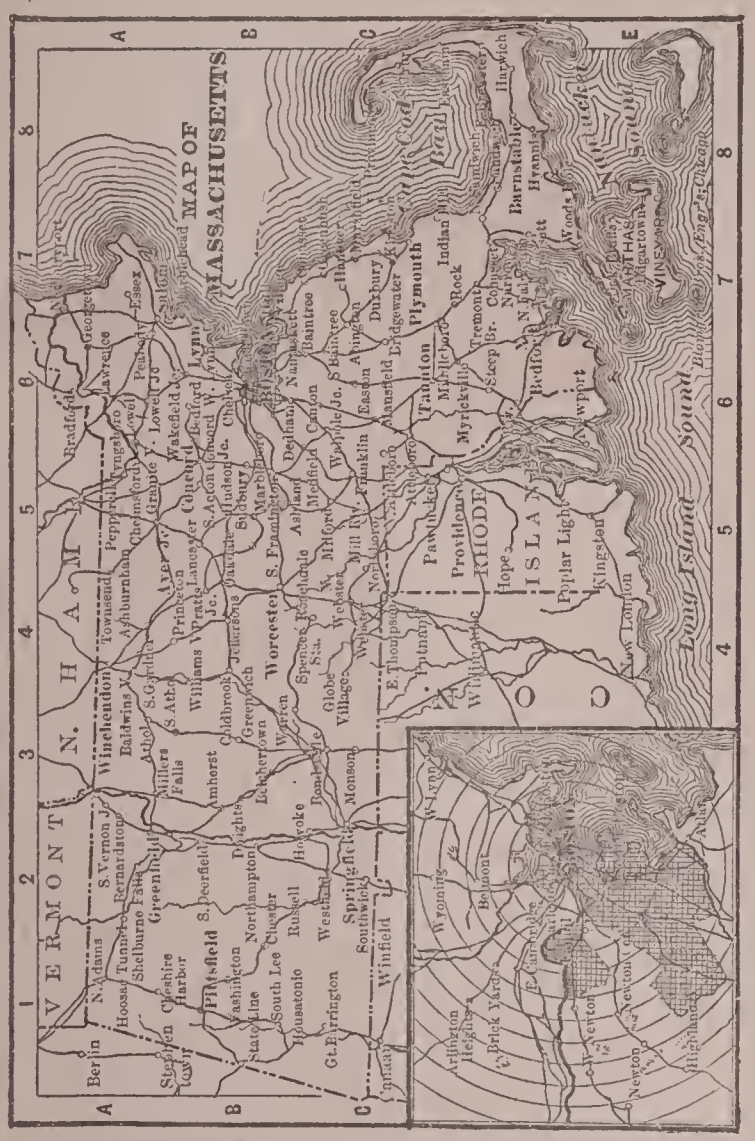


Wheat, corn, oats, buckwheat and tobacco staple crops. Opportunities for capital are yet excellent. Climate.—Mild agreeable and healthful, some little malaria in lowlands. Temperature softened by ocean. Winter averages 37 deg., summer 78 deg. Rainfall, 42 inches. Chief

Cities—Baltimore, port of entry; Annapolis, capital, contains United States Naval Academy; Cumberland. Chief Industries.—Agriculture and fruit growing, oyster and other fishing, canning, coal, iron and copper mining, manufacturers of cotton goods, etc.

MASSACHUSETTS.

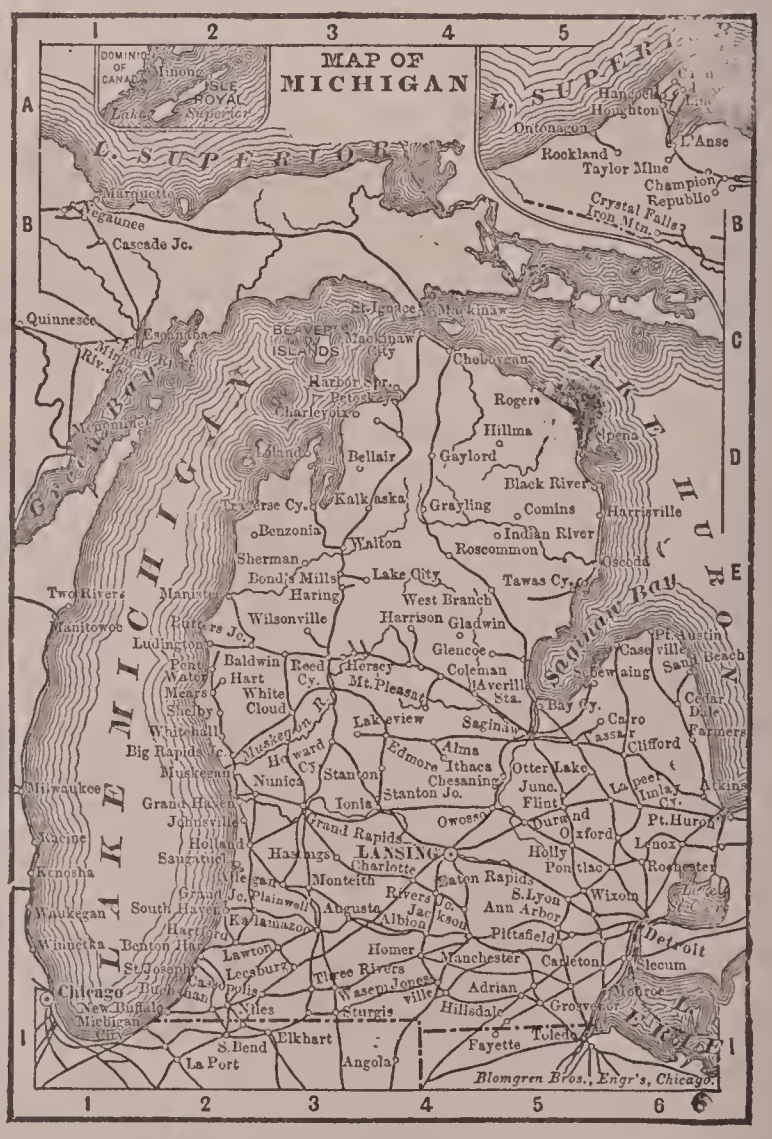
"Old Bay State." One of the 13 original States. First settlement 1802, abandoned the same year. Explored 1614 by Captain John Smith. First permanent settlement 1620. Pilgrims landed on Plymouth Rock Dec. 22. Boston settled 1830. First American newspaper Boston, 1690. Massachusetts was active in bringing on Revolution. Boston



massacre March 5, 1770. Destruction of tea Dec. 16, 1773. Boston port bill passed March, 1774. Battle of Lexington first blood of Revolution. Ratified U. S. constitution Feb. 6, 1788. Union soldiers, 146,730, besides sailors. Number counties 14. All elections Tuesday after first Monday in November. Number senators, 40; representatives, 240; meeting first Wednesday in January; yearly terms of senators and representatives, 1 year. Number electoral votes, 14; congressmen, 12. Paupers, persons under guardians, non-taxpayers, and men unable to read and write, excluded from voting. School system excellent; attendance compulsory; age 5–15 years. Seven colleges, including Harvard. Legal interest, 6 per cent.; by contract, any rate. Population.—1880, 1,783,085. Females outnumber males. Indians, 369. Length, N. E. to S. W., 162 miles; breadth, 47 miles in western and 100 in eastern part; area of 8,040 square miles, 5,145,600 acres. Coast extensive and irregular, with numerous good harbors. The Merrimac only large stream entering sea within the State. The Taconic and Hoosac ridges traverse the State at the west. Saddle mountain, 3,600 feet, the highest peak. The east and northeast divisions are hilly and broken, and the southeast low and sandy. Scenery very beautiful, especially in Berkshire hills; soil generally light; hay best crop; wheat, oats, corn and vegetables grown. Forests practically exhausted. Cleared land averages $80, and woodland $45 per acre. Stone is found. No minerals mined. Elizabeth islands, Martha's Vineyard, Nantucket and smaller islands to the south belong to the State. Winters severe and protracted; summers short and warm; the thermometer ranges from 10 deg. below to 100 deg.; averages summer, 73 deg.; winter, 24 deg. Snow falls October to April. Rainfall, including snow, 44 inches. Chief Industries. — Agricultural and kindred callings. Fishing for cod and mackerel (half the fishing vessels of the Union owned here). Manufacture of cotton, woolen, worsted, silk, iron and steel goods, soap and implements, quarrying. Principal Cities.—Boston, Lowell, Lawrence and Fall River, famous for cotton manufactures; Worcester, railroad and manufacturing center; Cambridge, seat of Harvard College; Lynn, famous for manufacture of boots and shoes; New Bedford, greatest whaling port in the world; Springfield contains greatest arsenal in the United States.

MICHIGAN.

Called "Wolverine State." First settlement by Father Marquette, 1668, at Sault Ste. Marie. Admitted as State January 26, 1837. Thirteenth State to enter Union. Received upper peninsula as compensation for disputed territory same year. Union soldiers furnished, 87,364.



Number counties, 79. Miles railroad, 6,918. All elections Tuesday after first Monday in November. Number senators, 32; representatives, 100; sessions of legislature biennial, in odd-numbered years, meeting first Wednesday in January; terms of senators and representatives, two

years each; number electoral votes, 13; number congressmen, 11. Number voters, 467,687. Duelists excluded from voting. Number colleges, 9; efficient public schools, school age, 5–20 years. Legal interest, 7 per cent.; by contract, 10 per cent; usury forfeits excess of interest. Extreme length lower peninsula north and south, 278 miles; breadth, 260 miles. Extreme length upper peninsula east and west, 320 miles; width, 24 to 165 miles; area, 57,430 square miles, or 36,755,200 acres. Length shore line, 2,000 miles. Lower peninsula consists of plains and table lands, heavily timbered with pine and hardwoods and small prairies. Soil generally good, but patches of sand occur. Fruit raising, especially apples, peaches and grapes, very successful. All cereals make good crops, except corn at north. Staples, wheat, corn, oats, buckwheat, potatoes, barley, etc. Upper peninsula broken, rocky and almost mountainous, rising at west to 2,000 feet above the sea. Western portion mining region, eastern portion favorable to agriculture. Rivers, inlets and small lakes numerous. Water good and well distributed. Copper, valuable iron, coal and salt abundant. Timber yet in immense tracts of virgin pine and hardwoods. State ranks first in copper, lumber and salt, second in iron ore, third in buckwheat, fifth in sheep, hops and potatoes. Cleared land averages $20 per acre, forest $10. Climate.—Temperature averages at Detroit, winter 30 degrees; summer, 70 degrees; at Sault Ste. Marie, winter, 23 degrees; summer, 65 degrees. Rainfall at Detroit, 30 inches; at Sault Ste. Marie, 24 inches. Health excellent.

Chief Cities.—Detroit, Grand Rapids, Lansing (capital), Bay City, East Saginaw, Jackson, Muskegon, Saginaw. Detroit, Marquette, Port Huron, Grand Haven ports of entry.

Chief Industries.—Lumbering, mining, farming, fruit raising, manufacturing, fishing, etc.

MINNESOTA.

"Gopher State." Explored by Fathers Hennepin and La Salle, 1680, via Mississippi river to Falls St. Anthony. Admitted as State 1858. Foreign immigration immense. Number Union soldiers furnished, 25,052. Number counties, 80. All elections Tuesday after first Monday in November; number senators, 47; representatives, 103; sessions of legislature, biennial, in odd-numbered years, meeting Tuesday after first Monday in January; holding 60 days; term of senators, 4 years; representatives, 2 years. Number electoral votes, 7; congressmen, 5; voters, 213,485; idiots, insane and convicts not voting. Number colleges, 5; school age, 5-21; school system, first-class. Legal interest rate, 7%; by contract, 10%; usury forfeits excess over 10%.

Length N. and S., 378 miles; average width, 261 miles; area, 79,205 sq. miles, 50,691,200 acres. Surface, rolling plain, 1,000 feet above sea level, except at N. E., where are a series of sand hills called "Heights of Land," 1,600 feet high. It is the State of small lakes, including over 7,000, varying from a few rods to 32 miles across. In one of these, Itasca, the Mississippi rises and flows 800 miles through the State. The other principal rivers are the Minnesota, Red River of the North, and the St. Louis. Small streams and lakes make water plentiful. The scenery is picturesque and beautiful. The soil is splendid, as a rule, and the accessibility to market and general attractions render the State especially favored by agriculturists. The forests of the State are small (2,000,000 acres), but in parts are rich in fine timbers. Two-thirds of the State are unoccupied. Cleared land averages $12.50 per acre, and woodland $8. Wheat is the great crop. Corn, oats, barley, hay and dairy products are also staples. State ranks fourth in wheat.

Climate.—Healthful. Air, pure and dry, summers warm, averaging 68–70 deg.; winters cold, averaging 9–24 deg. Rainfall 36 inches, chiefly in summer. Snowfall medium. The dryness mitigates the cold in winter.

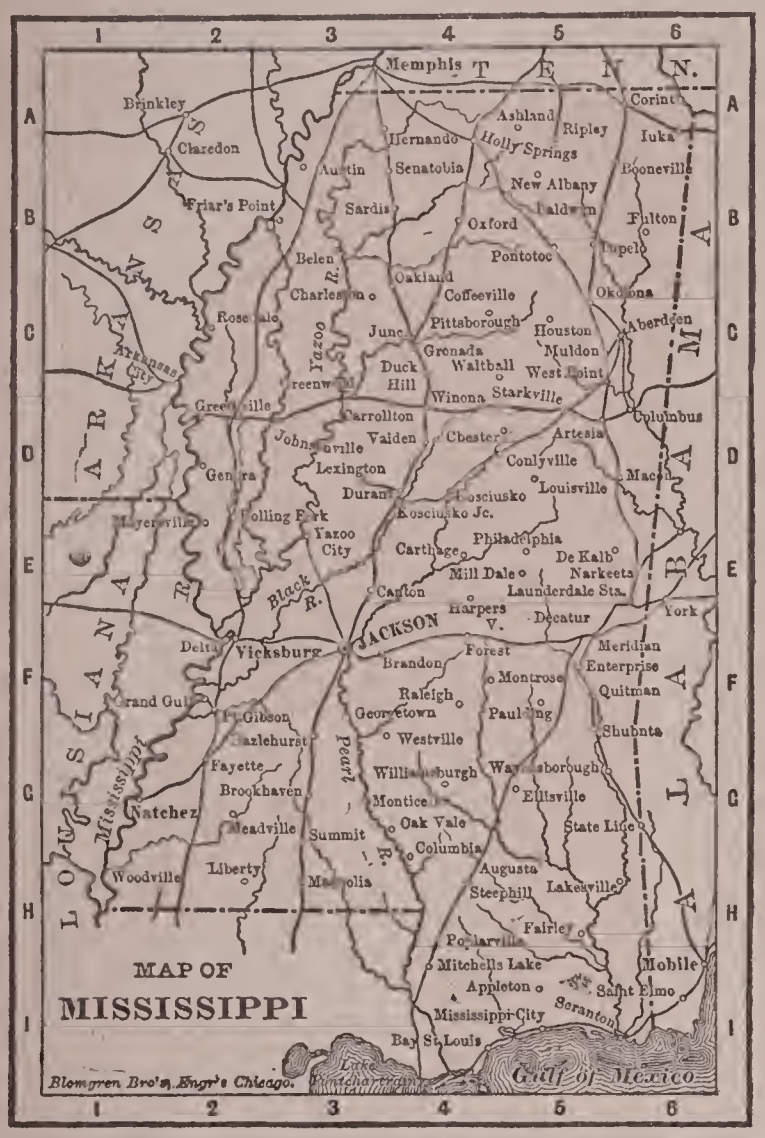
Chief Cities.—Pembina, port of entry on Red river; St. Paul, capital; Minneapolis.

Chief Industries.—Agriculture, dairying, milling, etc.

MISSISSIPPI.

Indian name meaning Father of Waters. "Bayou State." Visited by De Soto 1542, by La Salle 1682. Settled Biloxi, 1699, by M. de Iberville. Formed a part of the territory of Louisiana, and belonged to France. Admitted as a state Dec. 10, 1817. Seventh state admitted. State active in war of 1814 and with Mexico. Seceded 1861. Shiloh the most notable battle of the Rebellion in the state. State re-entered Union 1870. Number counties 74. State officers elected quadrennially, and legislature every two years; all elections Tuesday after first Monday in Nov.; sessions of legislature biennial, in even-numbered years, meeting Tuesday after first Monday in Jan.; number senators 37, representatives 120; term of senators 4 years, of representatives 2 years; number electoral votes 9, congressmen 7, voters 238,532, colored 130,278, foreign white 5,674. Idiots, insane and criminals excluded from voting. Number colleges 3, school age 5-21, school system fair. Legal interest 6 per cent., by contract 10 per cent.; usury forfeits excess of interest. Slaves 1860, 436,631. Greatest length N. and S. 364 miles, average width 143 miles, area 46,340, sq. miles, 29,657,600 acres. Coast line, including islands, 512 miles. Harbors, Biloxi, Mississippi City, Pascagoula and Shieldsburg. Surface undulating with a gradual slope from elevation of 700 feet at N. E., W. and S. to the Mississippi and Gulf. Some hills reach 200 feet above

surrounding country. From Tenn. line S. to Vicksburg, Mississippi bottoms wide, flat, with more or less swamp, and covered with cypress and oak. Soil an inexhaustible alluvium. Soil light but productive, at south sandy with pine growth. Cotton prolific. Staple crops, cotton, rice, sugar, molasses, tobacco, corn, sweet potatoes, grapes for wine. Fruits and vegetables are splendid crops, but are



neglected. Forest area large, pine, oak, chestnut, walnut and magnolia grow on uplands and bluffs, long-leafed pine on islands and in sand. Lumbering important industry, mules raised with great success. State ranks second in cotton, fifth in rice. Oyster and other fisheries valuable. Cleared land averages $7.50 per acre, woodland $3. Climate mild, snow and ice unknown. Summers long and warm, July and August hottest months. Temperature averages summer 80 deg., winter 50 deg. Rainfall 46 in. at north, 58 in. at south. Highlands very healthy. Malaria in bottoms. Chief Cities.—Jackson (capital), Natchez, Vicksburg. Leading Industries.—Agriculture, lumbering, fishing and canning.

MISSOURI.

Name Indian, means "Muddy River." Settled first at St. Genevieve. Organized as territory under present name 1812, included Arkansas, Indian Territory, etc. Admitted March, 1821. Eleventh State admitted. Admission aroused much discussion. "Missouri Compromise" effected and State permitted to retain slavery. State divided on secession and was scene of perpetual internal warfare. Martial law declared Aug., 1862. Union soldiers furnished, 109,111. Number connties, 115. State officers elected quadrennially, and legislature every two years. All elections Tuesday after first Monday in November; number senators 34, representatives 141; sessions of legislature biennial, in odd-numbered years, meeting Wednesday after January 1, holds 70 days; term of senators 4 years, representatives 2 years. Number electoral votes 16, congressmen 14, number voters 541,207. United States army and inmates of asylums, poorhouses and prisons excluded from voting. Number colleges 17, school age 6–20, school system good, endowments large. Legal interest rate 6 per cent., by contract 10 per cent., usury forfeits entire interest.

Length N. and S. 575 miles. Average width 246 miles. Area 68,735 sq. miles, 43,990,400 acres. Soil generally good. South the surface is broken with hills, sometimes 1,000 feet high. The most noted, Iron Mountain and the Ozarks. West of Ozarks is a prairie region, with wide, deep, fertile valleys. Entire area well watered by small streams, springs, etc. Chief crops, corn, wheat, oats, potatoes, tobacco. Fruits do splendidly. Peaches especially fine. Vegetable gardening successful. Improved land averages $12, unimproved, $7 per acre. Coal, iron, marble, granite, limestone, lead and copper found in enormous deposits. Lead area 5,000 sq. miles. Forests magnificent. Growth walnut, poplar, oak and the hardwoods. grazing a leading business, both in extent and profit, Stock of all kinds raised with success. State ranks first in mules, third in oxen, hogs, corn and copper, fifth in iron ore.

Climate variable, with sudden changes, but generally pleasant and healthy. Summers are long and warm, but not enervating. Winters moderate, with occasional severe

days. Average temperature, summer 76 deg., winter 39 deg. Rainfall greatest in May, averages 34 inches.

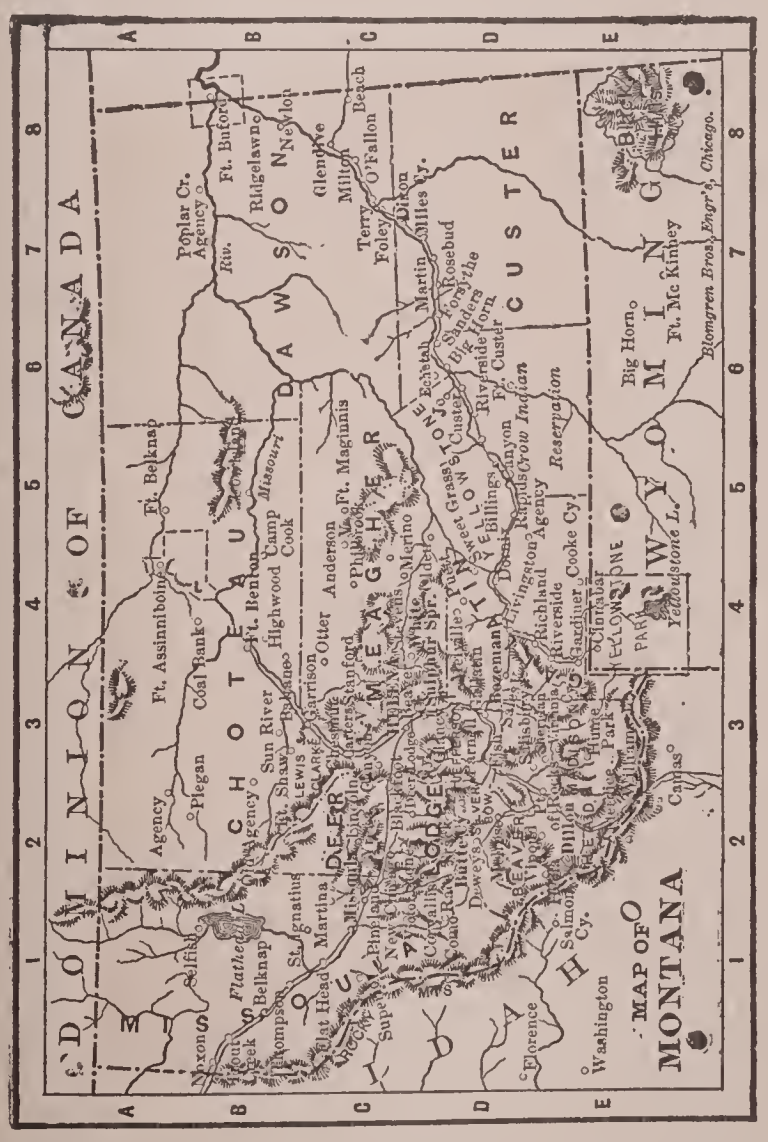
Chief Cities.—St. Louis, largest city west of the Mississippi, port of entry and great commercial and manufacturing point; capital, Jefferson City; St. Joseph, Kansas City.

Leading Industries.—Agriculture, mining, manufacturing, quarrying, grazing, fruit and vegetable growing, lumbering, etc.

MONTANA.

Gold discovered 1860. Formed part of Idaho, organized 1863. Organized as territory May, 1864. Admitted as a state 1889. Custer massacre June 25, 1876. 350 men of the 7th United States Cavalry annihilated by Sioux under Sitting Bull, on the Little Big Horn river. Number counties 14. All elections Tuesday after first Monday in Nov. Number senators 12, representatives 24. Sessions of legislature biennial, in odd-numbered years, meeting second Monday in Jan., holds 60 days; terms of senators and representatives 2 years each. Voters 21,544, native white 12,162, foreign white 7,474, colored 1,908. School age 4–21 years, graded schools in Deer Lodge City, Virginia City and Helena. School lands reserved for sale valuable and extensive. Legal interest 10 per cent, by contract any rate.

Extreme length E. and W. 540 miles, average width 274 miles, area 145,310 sq. miles, 92,998,400 acres, two-fifths good farm land, of which about 4,000 acres are cultivated. Three-fifths of territory rolling plains, rest mountainous. Surface fairly supplied with small streams. Timber supply ample. Soil good. Immense area of



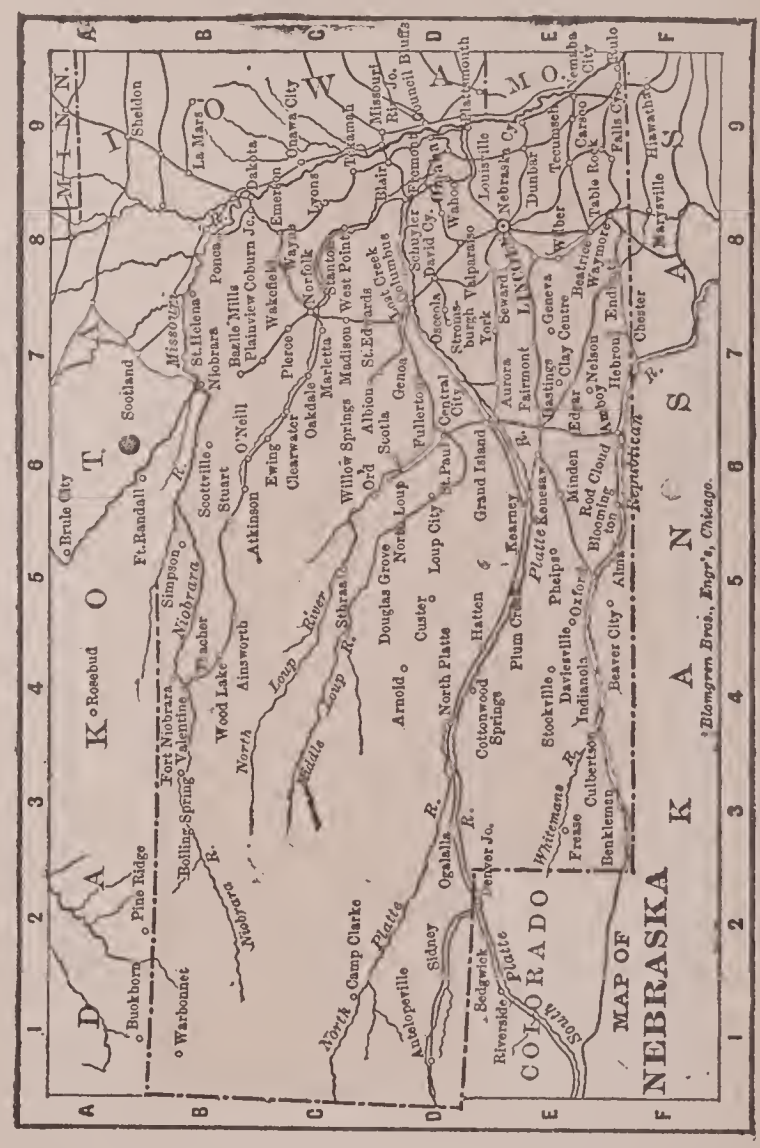
arable land. Wheat best crop, oats, potatoes, hay, also staples. Too cold for corn. Area grazing land, over two-thirds territory. Grazing interests great. Splendid grazing grounds yet untaken. Mineral wealth great. Ranks fifth in silver and in gold. Climate dry. Rainfall about 12 inches. Warmer than same latitude farther east. Snows heavy in mountains, light in valleys and on plains. Temperature averages summer 62 deg., winter 18 deg. Colder in mountains. Health excellent.

Chief Cities. — Helena, Virginia City, Deer Lodge; Helena capital and most important town.

Leading Industries. — Mining, lumbering, grazing, agriculture, smelting, etc.

NEBRASKA.

Name Indian, means "Shallow Water." Nebraska Territory organized May, 1854. Few settlements till 1864. Idaho cut off March, 1863, and present boundaries fixed. Bill to admit July, 1866, unsigned by President Johnson, and another Jan. 1867, vetoed. Bill passed over veto Feb.



1867. Admitted that year. Lincoln capital. Union soldiers furnished, 3,157. Number counties 74. All elections Tuesday after first Monday in Nov.; number senators 33, representatives 100, sessions biennial, in odd-numbered years, meeting first Tuesday in Jan., holding 40 days, terms of senators and representatives 2 years each, number electoral votes 5, number congressmen 3, number voters 129,042. U. S. army, idiots and convicts excluded from voting. Number colleges 9, school age 5-21, school system superior, school endowments liberal. Legal interest 7 per cent., by contract 10 per cent., usury forfeits interest and cost.

Topography, Area, Soil, Products, Etc. — Extreme length E. and W. 425 miles, width 210 miles, area 76,185 sq. miles, 48,755,000 acres. Surface a vast plain, undulating gently, and principally prairie with a few low hills. At extreme northwest are spurs of the Rocky Mountains, and Black Hill country begins, general slope from W. to E., Missouri, Platte, Niobrara, Republican and Blue, principal rivers, and are fed by numerous smaller streams. Southern portion of State peculiarly favorable to all kinds

of crops, western half magnificent series of pastures and best suited to grazing. Whole eastern two-fifths a great natural garden. Corn the great crop; wheat, oats, hay, rye, buckwheat, barley, flax, hemp, apples, plums, grapes, berries, staples and flourish. Cattle raising of vast importance and magnitude. Good herd laws. No important minerals. Manufacturing growing wonderfully. Improved land averages $9, unimproved $5, and woodland $18 per acre.

Climate dry, salubrious and free from malaria. Temperature averages, summer 73 deg., winter 20 deg. Rainfall east of 100th meridian, including snow, 25 inches, heaviest in May. At west, precipitation falls to 17 inches. Rainfall gradually increasing.

Chief Cities.—Omaha, U. S. port of delivery, commercial center; Lincoln, the capital, contains State University; Plattsmouth, Nebraska City.

Leading Industries.—Agriculture, cattle-raising, dairying, manufacturing, etc.

NEVADA.

"Sage Hen State." First settlements in Washoe and Carson valleys 1848. Gold discovered in 1849, silver 1859. Territory organized March, 1861. Admitted to state Oct., 1864. Number counties 15. Governor and state officials elected quadrennially, and legislature every 2 years, on Tuesday after first Monday in Nov.; number senators 20, representatives 40; sessions of legislature biennial, in odd-numbered years, meeting first Monday in Jan., holding 60 days. Term of senators 4 years, of representatives 2

years. Voting population 31,255, native white 11,442, foreign white 14,191, colored 5,622. Idiots, insane and convicts excluded from voting. School age 6–18 years. Legal interest rate 10 per cent., by contract any rate.

Extreme length N. and S. 485 miles, width 320 miles, area 109,740 sq. miles, 70,223,000 acres. Lake Tahoe, 1,500 feet deep, 10x22 miles in area and 9,000 feet above sea, temperature year round 57 deg. Many mineral springs, warm and cold. Great part of surface unavailable for cultivation. Considerable areas of grazing land; many valleys, rich, easily worked and prolific soil. Corn, wheat, potatoes, oats and barley, staple crops; horses, mules, cattle, hogs and sheep do well. Forests valuable. Mineral resources enormous. Comstock lode supposed to be richest silver mine in the world; Eureka one of the most productive. Rich in lead and copper; zinc, platinum, tin and nickel, plumbago, manganese, cobalt, cinnebar, etc., found. Extensive deposits of borax. Coal and iron. Ranks second in gold, fourth in silver. Kaolin, building stones, slate, soda and salt are obtained. Little land improved.

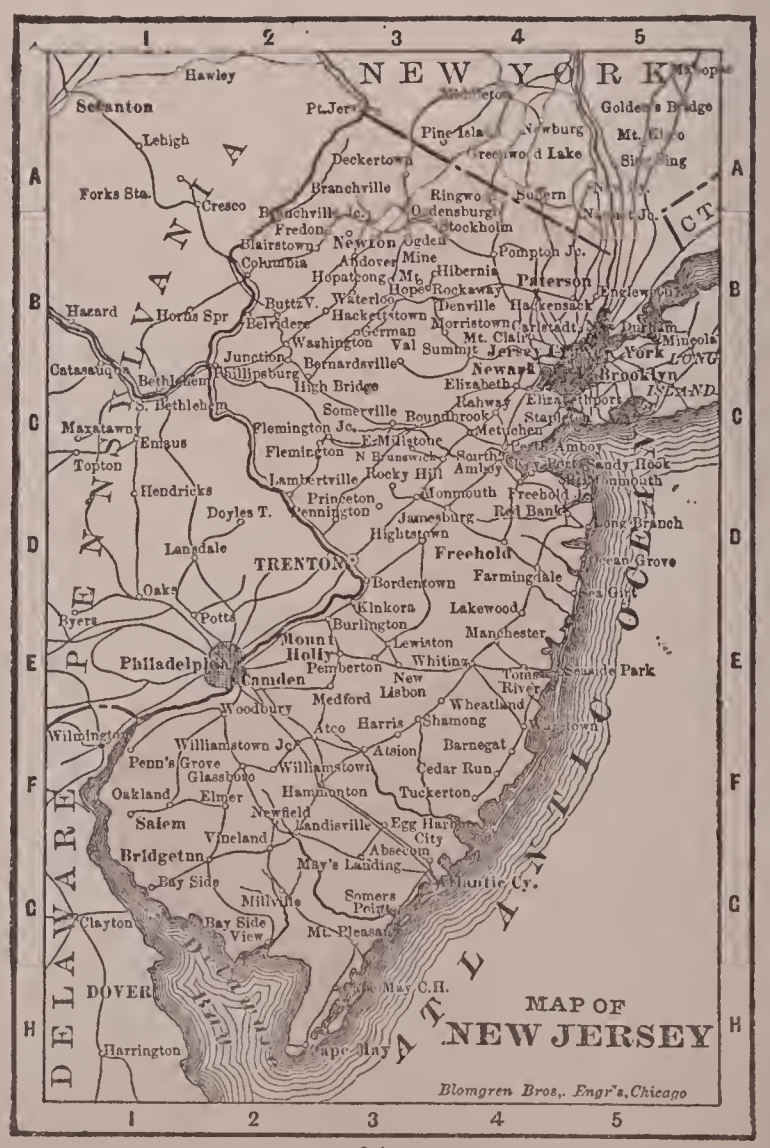
Climate mild in valleys; little snow except on mountains. At north mercury sometimes falls to 15 deg. below zero; air bracing, health good. Extremes of cold unknown. Summer heat occasionally reaches above 100 deg. Temperature averages, summer 71 deg., winter 36 deg. Rainfall slight, chiefly in spring.

Chief Cities.—Virginia City, chief commercial center; Carson City, capital, and contains a branch mint.

Leading Industries.—Mining, reducing ores, lumbering, agriculture, etc.

NEW JERSEY.

One of the thirteen original states. Battles of Trenton, Princeton, Monmouth and others fought within its borders during the Revolution. State Constitution adopted 1776, revised 1844, and amended in the present decade. United States Constitution unanimously adopted Dec. 1787. A slave state till 1860, when but eighteen slaves remained,



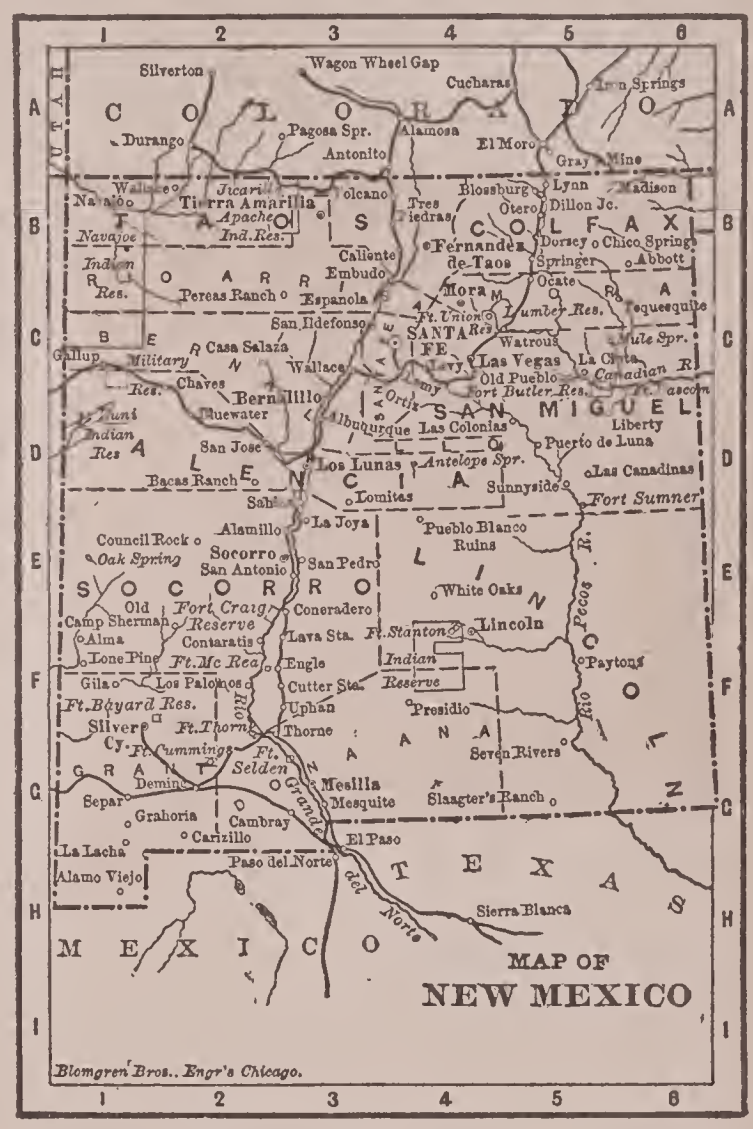
and it was counted a free state. Union soldiers furnished, 75,814. State contains 21 counties. State elections annual, same date as congressional and presidential. Number of senators 21, representatives 60, meeting of legislature 2d Tuesday in January. Term of senators 3 years, representatives 1 year. Number of electoral votes 9, congressmen 7. Paupers, idiots, insane and convicts excluded from voting. Number colleges 4, schools good, school age 5-18. Legal interest 6 per cent, usury forfeits entire interest. Length north and south 158 miles, width 38 to 70 miles, area 7,455 square miles; or 4,771,200 acres. Forty-third state in size. Atlantic coast 128 miles, Delaware Bay coast 118 miles. The famous Palisades of the Hudson at the northeast are 600 feet high. Toward center state slopes to a rolling plain, and at south becomes flat and low. Hudson river forms the eastern border. Delaware Water Gap and Falls of Passaic are the natural wonders of the state. Cleared land averages $80 and woodland $60 per acre. Hay the best crop. Other staple crops are potatoes, wheat, corn, rye, buckwheat, cranberries, fruit and garden produce. Little woodland valuable for timber remains. Iron and fertilizing marls are abundant. Climate variable; temperature averages, summer 68 deg. to 75 deg., winter 31 deg. to 38 deg. Range of temperature from about zero to 100 deg. Rainfall, including snow, 46 inches, reaching 50 inches in the highlands, and falling to 40 inches at the south. Highlands and seashore healthy. Ague and malarial fevers in the lowlands. Principal Cities—Newark, Perth Amboy, Great Egg Harbor, Tuckerton, Bridgeton and Lumberton are ports of entry; Jersey City, Trenton (capital), Paterson, Elizabeth, Hoboken, Camden. Chief Industries—Manufacture of fabrics, jewelry, clay wares and brick, flour, crystals, fishing, oyster fishing, gardening, agriculture, marl and iron ore digging, etc.

NEW MEXICO.

Name supposed to be of Aztec god. Settled earlier than any other part U. S. Permanent settlement, 1596. Santa Fe, then an Indian town, chosen as a seat of Spanish government. The natives were enslaved and forced to work in the fields and mines. Organized as Territory, 1850. Santa Fe captured by Confederates, 1862, but soon abandoned. Number counties, 13. All elections, Tuesday after first Monday in November. Number senators 12, representatives 24, sessions of legislature biennial, in even-numbered years, meeting first Monday in January, hold 60 days. Terms of senators and representatives, 2 years. Voters 34,076, native white 26,423, foreign white 4,558, colored 3,095. School age, 7-18 years. Legal interest rate, 6 per cent., by contract 12 per cent.

Average length N. and S., 368 miles, width 335 miles. Area, 122,000 sq. miles, 78,400,200 acres. Elevation, 3,000 to 4,000 feet. Mountain peaks, 12,000 feet. The Staked Plain, an elevated region, unwatered and without wood, extends into the southeastern part of the Territory. No streams are navigable in the Territory. Timber scarce, except in few sections. The mountains are clothed with pine, spruce and fir. Cedar grows in foothills, and cottonwood and sycamore in valleys. Soil rich where water can be had for irrigation or on streams. Corn, wheat, oats, alfalfa, grapes, vegetables, especially onions and root crops and semi-tropical fruits are prolific. Sheep raising very profitable. Grazing interests extensive. Gold found in Grant, Lincoln, Colfax and Bernalillo counties, rich copper mines in Bernalillo county and in the Pinos Altos region. Zinc, quicksilver, lead, manganese and large deposits of coal have been found. Irrigable surface, 7,000 sq. miles.

Climate varies with different elevations. Temperature averages, summer, 70 deg., winter, 33 deg. Range of temperature, 4 deg. below zero to 90 deg. above. It is much warmer than the average in the lower altitudes, and colder in the higher. Air dry, rarefied and pure. Rainfall, 9 to 11 inches.



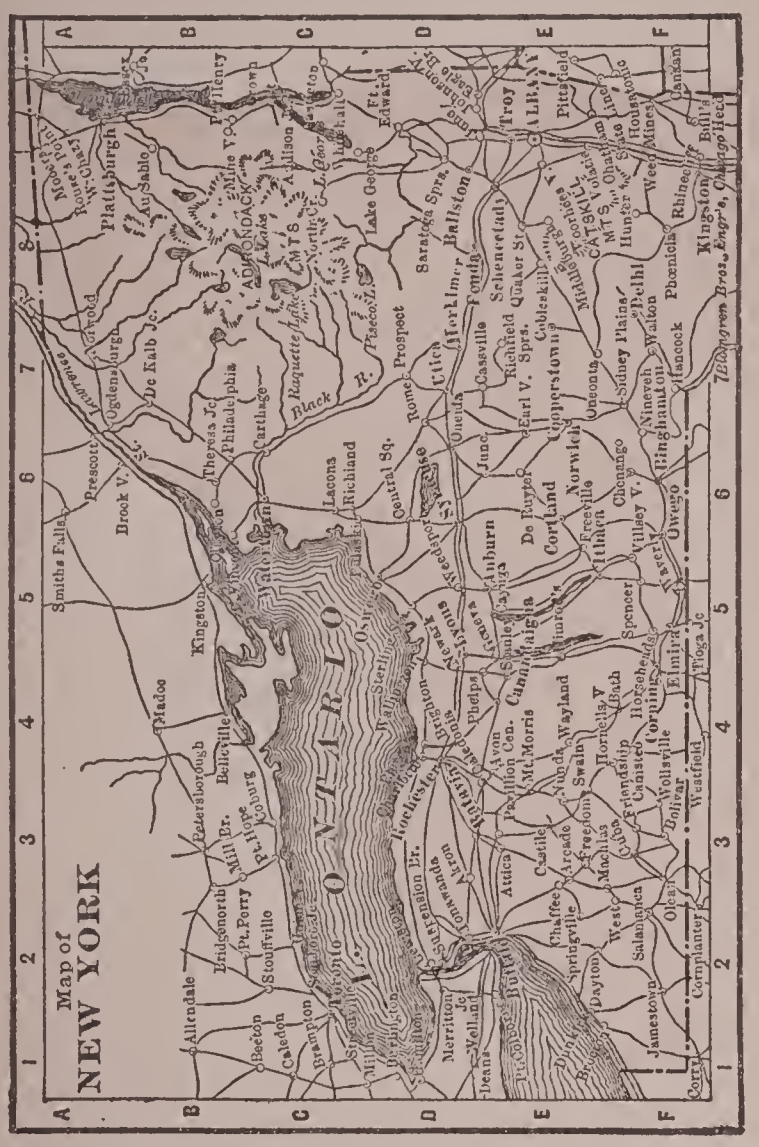
Chief Cities. — Santa Fe (capital), Las Vegas, Silver City and Albuquerqe.

Leading Industries.—Mining, stock-raising and agriculture.

NEW YORK.

One of the thirteen original States, "Empire State." Explored by Henry Hudson, Sept. 1609. The Dutch settled on Manhattan Island, 1614. Country called "New Netherland." Manhattan Island purchased from Indians for $24, 1626. England claimed the country as part of Virginia, captured Manhattan (New Amsterdam) Aug. 1664, and named it New York. New York the battle-field of the French-English war 1754, was prominent in the Revolution. New York City capital 1784 to 1797. Slavery abolished 1817. Union soldiers furnished, 448,850; number counties 60, custom districts 10, first railroad Albany to Schenectady 1831. State officers elected every 4 and senators (32 in number) every 2 years, representatives (125 in number) yearly, on the same day as presidential election. Legislature meets first Tuesday in February yearly; congressmen 34, presidential electors 36. Election betters and bribers and convicts excluded from voting. School system superior, includes 28 colleges. School age 5 to 21 years. Legal interest 6 per cent. usury forfeits principal and interest. Extreme length E. and W. 410 miles, extreme width 311 miles, area 47,620 sq. miles, 30,476,800 acres, water frontage 900 miles, surface varied. The Hudson, rising in the Adirondacks, and flowing south over

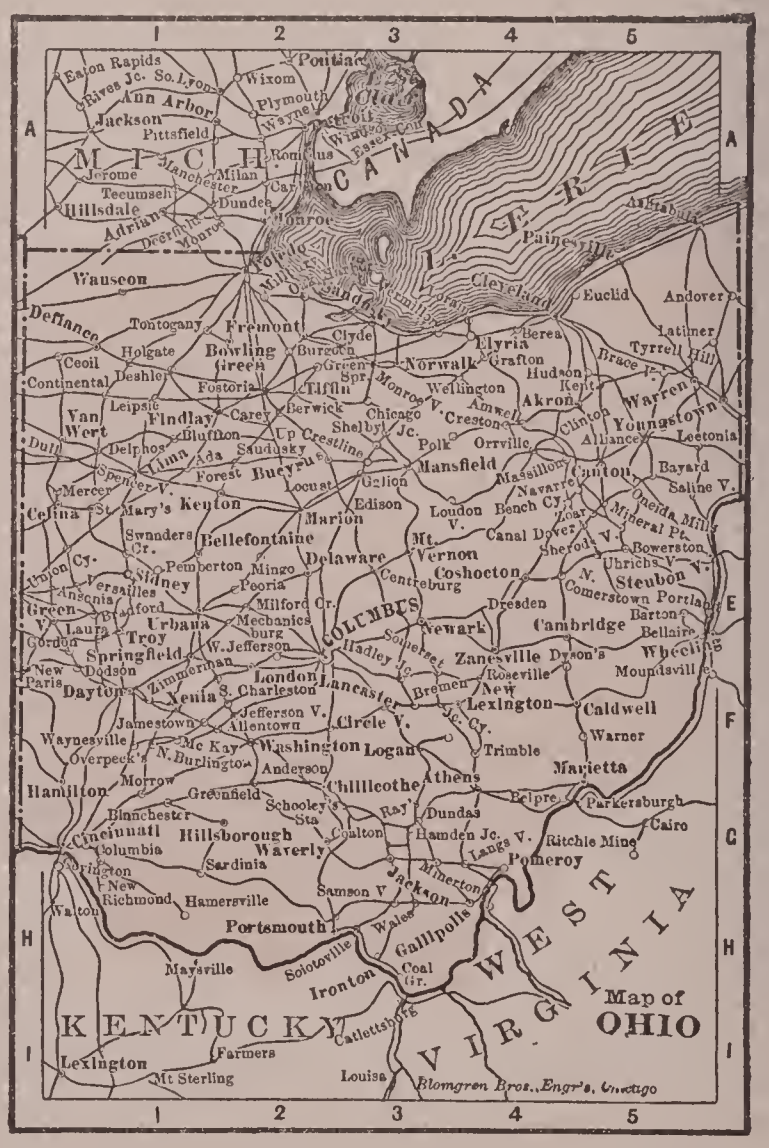
300 miles to New York bay, is the chief stream. The Allegheny and its tributaries drain the S. W., and the Susquehanna the southern central division. The State is noted for the beauty of its lakes. Long, Manhattan and Staten Islands form important divisions of the State.



Agriculturally the State is very rich. Cleared land averages $60 and wooded $40 per acre. Considerable forests yet remain. The production of corn, wheat and dairy products is very large. The State ranks first in value of manufactures, soap, printing and publishing, hops, hay, potatoes, buckwheat and milch cows. Climate diverse, mean annual temperature for the State 47 deg. In the Adirondacks the annual mean is 39 deg., in the extreme south it is 50 deg., average rainfall 43 in. including snow, the fall being greatest in the lower Hudson valley, and smallest (32 in.) in the St. Lawrence valley. Range of temperature 10 deg. below to 100 above zero. Principal Cities.—New York, Brooklyn, Buffalo, Rochester, Syracuse, Albany (capital). Leading Industries. — Manufacturing of all kinds, agriculture, dairying, the trades, etc.

OHIO.

"Buckeye State." Explored by La Salle 1679. Ohio Territory organized May 7, 1800. Admitted as a State April 30, 1802. Number Union soldiers furnished 313,180. Number counties 88. State and congressional elections second Tuesday in October. Number senators 33, representatives 105; sessions biennial, but "adjourned sessions" practically amount to annual meetings; assembles first Monday in January. Terms of senators and representatives 2 years each. Number electoral votes, 23. Number congressmen, 21. Number voters 826,577. Insane and idiots excluded from voting. Number colleges 35, school age 6–21, school system first-class. Legal interest rate 6 per cent., by contract 8 per cent., usury forfeits excess. Extreme length E. and W. 225 miles, breadth 200 miles, area 40,760 sq. miles, 25,686,400 acres. Includes Kelley's and Bass islands in Lake Erie. Lake frontage 230 miles, Ohio River frontage 432 miles. Entire state well watered. Valleys extremely productive. Uplands fertile as a rule. Ohio ranks first in agricultural implements and wool, second in dairy products, petroleum, iron and steel, third in wheat, sheep, coal, malt and distilled liquors, fourth in printing and publishing, salt, miles railway and soap, fifth in milch cows, hogs, horses, hay, tobacco and iron ore. Coal, building stones, iron ore and salt are found in vast quantities. Staple crops, wheat, corn, oats, potatoes, tobacco, buckwheat, etc., vegetables, apples, and the hardier fruits. Cleared land averages $45, woodland, $40 per acre. Little forest valuable for lumber remains, except in small reserves. Climate as healthful as any in the United States. Warmest on Ohio River. Temperature for State averages, winter 35 deg., summer 77 deg., range of temperature 16 deg. below zero to 101 deg. above. Snowfall considerable. Average rainfall, including snow,



42 inches; decreases to 37 inches at north and increases to 47 inches at south. Chief Cities.— Cincinnati, Cleveland, Columbus (capital); Chillicothe, Zanesville, Toledo, Sandusky, Cleveland and Cincinnati, ports of entry. Leading Industries. — Agriculture, dairying, mining, quarrying, iron making, pork packing, manufacturing.

OREGON.

Name means "Wild Thyme." Oregon territory organized August, 1848. Indian troubles, 1844, '47 and '54. Oregon admitted as a State 1859. Number counties 25, miles railroad 1,165. State officers elected quadrennially, and legislature every two years; number of senators 30,

representatives 60, sessions of legislature biennial in odd-numbered years, meeting first Monday in Jan., holds 40 days; term of senators 4 years, representatives 2 years. Number electoral votes 3, congressman 1, voters 49,629,

including women. United States army, idiots, insane, convicts and Chinese not voting. Number of colleges 7, school age 4–20, school system good. Legal interest rate 8 per cent, by contract 10 per cent, usury forfeits principal and interest.

Average length E. and W. 362 miles, average width 260 miles, area 94,560 sq. miles, 60,518,400 acres. Two-thirds entire State mountainous, with wide rich valleys. Columbia river 1,300 miles long, navigable 175 miles, full of cascades and runs through entrancing scenery. Soil generally superior. Wheat the best crop, superior in yield and quality; other crops do well, as do also fruits and vegetables, etc. Extremely favorable to cattle and sheep. Rich in minerals, gold in Jackson, Josephine, Baker and Grant counties, copper in Josephine, Douglas and Jackson, iron ore throughout the State; coal along coast range. Timber resources enormous, and but little touched. Salmon fisheries among best in world. Improved land averages $17.50, unimproved $4. Area arable two-fifths State, forest one-sixth State.

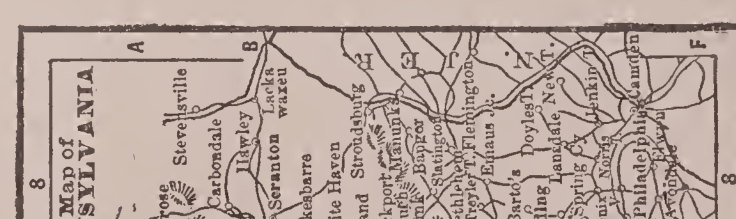
Climate.—In western Oregon moist, equable, rainfall 59 inches. In eastern Oregon dry. Both pleasant and healthful, though subject to occasional extremes at east Crops in east do now suffer, however, from drouth. At west snow and ice unknown, except on peaks, where it is perpetual. Frosts on high lands. Average temperature summer 65 deg., winter 45 deg.

Chief Cities.—Portland, Astoria and Coos Bay, ports of entry, Rosenburgh, Portland and Salem (capital.)

Leading Industries. — Agriculture, grazing, mining, fishing, lumbering, fruit growing, canning, etc.

PENNSYLVANIA.

One of the thirteen original states, named for Wm. Penn, the "Keystone State." State invaded three times by confederates, 1862, 1863, when battle of Gettysburg was fought, and 1864, when Chambersburg was destroyed. Union soldiers furnished, 337,930. Number counties, 67. State elections annual, same date as presidential. Number senators 50, representatives 201, sessions biennial, meeting first Tuesday in Jan., hold 150 days, term of senators 4 years, representatives 2 years, number electoral votes 30, congressmen 28. Non-taxpayers and bribers excluded from voting. Number colleges 26, school age 6-21, school system good. Legal interest 6 per cent. Usury forfeits excess of interest. Length east and west 300 miles, width 176 miles, area 44,985 sq. miles, 28,790,400 acres. Surface very diverse. Level at the southeast, hilly and mountainous toward the center, and rolling and broken at the west and southwest. Soil varies from barren hills to sections of great fertility. Many superb farms. Cleared land averages $45, woodland $30 per acre. Much good timber remains. Farms average 100 acres. Oil, coal (anthracite at east, bituminous at west), iron, copper, kaolin, building stones, salt abound. Rye, corn, wheat, buckwheat, potatoes, vegetables, hay, oats, tobacco are staple crops. Dairying and stock flourish. Climate in mountains severe in winter, with much snow, summers pleasant. Summers hot on the Delaware, reaching 100 deg. Summers long in Susquehanna valley. West of mountains summers hot and of moderate length, winters cold. Average winter temperature 34 deg., summer 74



deg., rainfall, including snow, average 42 inches. Climate healthy. Chief Cities. — Philadelphia, third city in the United States, contains mint and navy yard; Pittsburgh, extensive manufacturing city; Harrisburg, capital. Phila-

delphia, Pittsburgh and Erie are ports of entry. Industries.—Pennsylvania is the great iron, oil and coal state. The other industries include agriculture and kindred pursuits, lumbering, manufacture of paper, woolens, liquors, implements, machinery, etc.

RHODE ISLAND.

One of the 13 original states. Called "Little Rhody." First settled at Providence, 1636, by Roger Williams. Island of Aquidneck (Rhode Island) bought from Indians, 1638, and Newport and Portsmouth founded. Lands of Narragansett Indians acquired by purchase, 1709. R. I.

seamen distinguished themselves in the Anglo-French wars, 1750 to 1863, and in the Revolution. Union soldiers furnished, 23,236. Number counties, 5. State elections first Wednesday in April. Elects 72 representatives, 34 senators, 3 congressmen and 4 presidential electors. Legislature meets annually on last Tuesday in May, at Newport, and holds adjourned session annually at Providence. Terms of senators and representatives one year. Persons without property to the value of $134 excluded from voting. Brown's University at Providence founded 1764. Common school system excellent. School age 5-15. Legal interest rate 6 per cent., by contract any rate. Area 1,088 sq. miles, or 696,320 acres. Length N. and S. 46 miles, width 40 miles. Narragansett bay divides the state unequally, the western and larger part extending N. from the ocean some 27 miles. The bay is 3 to 12 miles wide, and contains several islands, of which Acquidneck, Canonicut and Prudence are largest. Block Island, at the western entrance of the bay, also belongs to this state. Surface of state broken and hilly. Small rivers unfit for navigation are numerous, and afford valuable water powers. Chief rivers: Pawtucket and Pawtuxet, entering Narragansett bay and Pawcatuck, falling into Long Island Sound. The state contains numerous small lakes, some of great beauty. Scenery varied and pretty. Soil middling quality. Hay best crop. Potatoes, corn and oats are the next most important products. No forests. Dairying profitable. Land high-priced. No minerals mined. Climate, owing to nearness to sea, moderate. Average temperature—winter 24 to 42 deg., summer 44 to 74 deg. Rainfall 43 inches. Snow lies 60 to 100 days. Health good. Chief Industries.—Manufacture of fabrics of cotton, flax, linen, wool, boots and shoes, rubber goods, metals, jewelry, etc., agriculture, dairying. Rhode Island, in proportion to size, is the largest manufacturing state in the Union. Principal Cities.—Providence, capital and seaport; Newport, capital, seaport finest in the world, and great pleasure resort; Bristol, seaport; Warren, seaport; Lincoln, Pawtucket, Woonsocket.

TEXAS.

"Lone Star State." Settled first by French under La Salle 1685; was a part of Old Mexico. Independence declared Dec. 20, 1835. Houston inaugurated as president Oct., 1836. Independence of the republic recognized by United States March, 1837; by European powers 1839 and '40. Continued wars with Mexico embarrassed finances. Proposition for union with United States 1845, and admitted as a state Dec. 29. State paid $10,000,000 by United States for all lands outside present limits 1850.

Seceded Feb., 1861. Houston, who refused to secede, deposed. Military operations small. Last battle of the war near Rio Grande May 13, 1865. Re-entered Union 1870. Number counties, 228. All elections Tuesday after first Monday in Nov.; number senators 31, representatives 106; sessions of legislature biennial, in odd-numbered

years, meeting second Tuesday in Jan., holds 60 days; term of senators 4 years, of representatives 2 years. Number electoral votes 13, congressmen 11, voters 380,376. United States army, lunatics, idiots, paupers and convicts excluded from voting. Number colleges 10, school age 8–14. School endowment enormous; includes millions of acres yet unsold. Legal interest 8 per cent, by contract 12 per cent, usury forfeits entire interest. Extreme length E. and W. 830 miles, extreme width 750 miles, area 167,865,600 acres, largest of the states and territories. Coast line 412 miles. Galveston bay largest, has 13 feet of water, 35 miles inland. Rio Grande navigable 440 miles. Lands extremely fertile, except in the N. W., where water is scarce. Lands on Rio Grande and at south require irrigation for good results, although crops will grow to some extent without. Entire state covered with rich grasses, affording pasture the year round. All cereals, root crops, vegetables, fruit and stocks flourish. Cotton best crop. Other staples, sugar, molasses, sweet potatoes, corn, wheat, grapes and fruits. Dairying extensive. Cattle, sheep, goat and hog raising on mammoth scale. Cotton picking July to Dec., corn planting middle of Feb., grain harvest May, corn harvest July. Ranks first in cattle and cotton, second in sugar, sheep, mules and horses. Coal area 6,000 sq. miles, quality good. Iron ore and salt deposits extensive. Other minerals found, but extent unknown. Improved land averages $8, and unimproved $3 to $4 per acre. Uncultivated and timber land seven-eighths of area, timber area one-fourth. Climate varies, temperate at north, semi-tropical at south. Health everywhere most excellent. Thermometer ranges from 35 to 98 deg., but seldom rises to the latter temperature; at Austin averages winter 56 deg., summer 80 deg. Rainfall averages at Austin 35 inches, increases on coast and to the south, decreases to 13 inches in N. W.

UTAH.

Settled 1848 at Salt Lake by Mormons from Illinois. March, 1849, state of "Deseret" organized. Congress refused to receive constitution adopted. Utah territory organized September, 1850. Troubles with government till 1858. Federal officers driven from territory 1856. Number counties 24. Territorial elections annual, first Monday in August. Number senators 12, representatives 24, sessions of legislature biennial, in odd-numbered years, meeting second Monday in January, holds 60 days. Terms of senators and representatives 2 years each. Voting population 32,773, native white 15,795, foreign white 18,283, colored 695. School system fair, school age 6-18 years, number colleges 1. Legal interest 10 per cent., by contract any rate.

Average length 350 miles, width 260 miles, area 82,190 miles, 52,601,600 acres. Surface rugged and broken, with some rich valleys. Traversed by Wahsatch, Uintah, Roan, Little, Sierra Lasal, Sierra Abajo, San Juan, Sierra Panoches and Tushar mountains. Southeast portion elevated plateaus, western portion disconnected ridges. Great Salt Lake is 130 sq. miles in area. In N. W. a large area of desert land. Soil in valleys very productive. Yield fine crops of cereals and vegetables. Wheat best crop. Fruits successful. Grazing important interest. Dairying profitable and interest is growing rapidly. Forests sufficient for home purposes. Gold, copper and silver in Wahsatch mountains. Silver predominates. Coal in valley of Weber river. Salt found in large deposits and the lake supply inexhaustible. Territory ranks third in silver.

Climate mild and healthy. Warmer W. of Wahsatch mountains. Summers dry and hot in S. W. Rainfall averages 16 inches at S. and 17 at N., chiefly in October and April. Spring opens in April. Cold weather begins

late in November. In mountains winters severe and snows heavy. Temperature at Salt Lake averages, winter 35 deg., summer 75 deg.

Chief Cities.—Salt Lake City (capital) and Ogden.

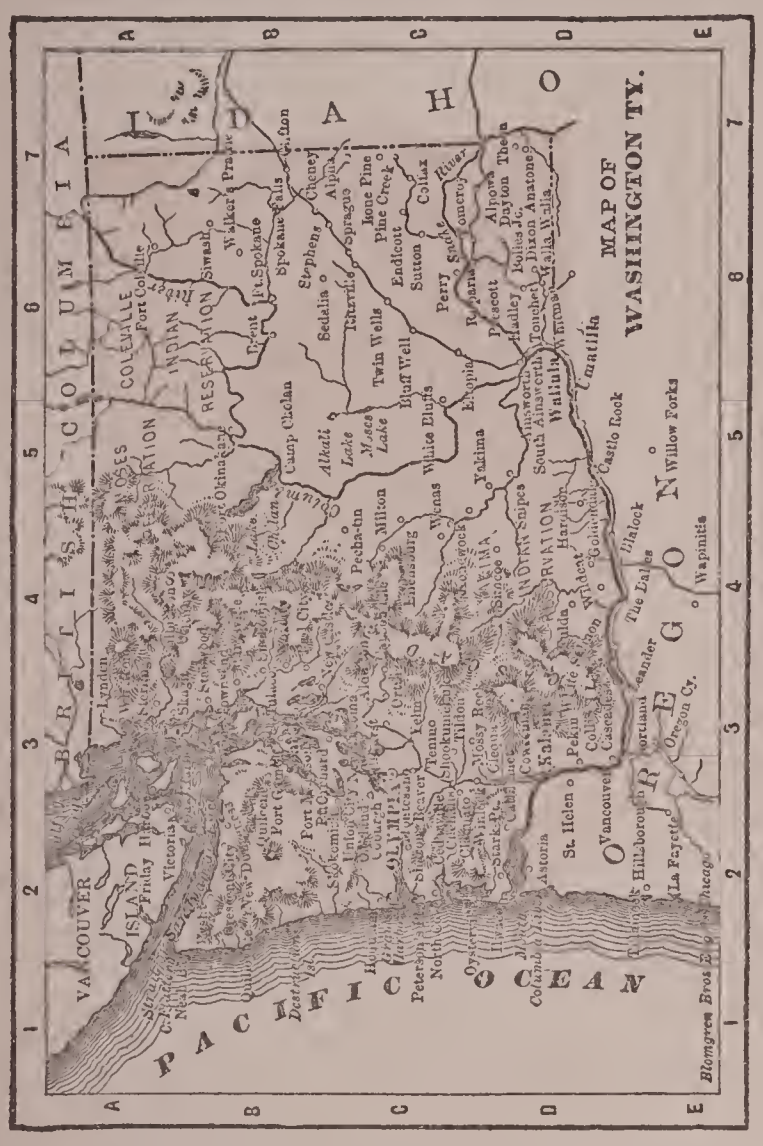
Leading Industries.—Mining, stock-raising and agriculture.

Admitted as a State, 1896.

WASHINGTON.

Named for George Washington. First settlement 1845, preceded, however, by Hudson Bay Co.'s trading posts. Organized as territory 1853, admitted as state 1889. First legislature assembled at Olympia February, 1854. Indian wars 1855 and 1858. Gold discovered 1855. Island San Juan in dispute between United States and England 1859. Rights of the Hudson Bay and Puget Sound Co. purchased. Number counties 33. All elections Tuesday after first Monday in Nov. Number senators 12, representatives 24, sessions of legislature biennial in odd-numbered years, meeting first Monday in October. Terms of senators and representatives 2 years each. Number colleges 2, school age, 4-21 years, school endowment reserved large. Legal interest 10 per cent, by contract any rate.

Topography, Area, Soil, Prodncts, Etc. — Extreme length E. and W. 341 miles, width 242 miles, area 66,880 square miles, 42,803,000 acres. Coast line 200 miles. Columbia river navigable 175 miles. Excellent harbors in Puget Sound Admiralty Inlet and Hood's canal. Scen-



ery, especially on Columbia, grand. Columbia river current overcomes tide at the mouth, and water in the bar drinkable. Cereals flourish but corn not successful. Wheat, oats, hops, fruit of temperate climates, except peaches, are staple. Grazing region entire section east of Cascades, covered with inexhaustible supply of bunch grass. Stock raising and dairying growing industries. Lumber resources unsurpassed. Coal on Bellingham bay and at Seattle, area of coal-bearing strata 20,000 sq. miles. Gold-bearing quartz and silver lodes in Cascade and Coast ranges. Copper, cinnabar, lead and other minerals are found.

Climate.—On coast dry season from April to November, rest of year rainy. Rainfall averages at north 96 inches, for entire section 54 inches. Winters mild, little snow or ice. Summers cool with sea breezes. Temperature averages winter 39 deg., summer 61 deg., ranges 30 deg. to 90 deg. Eastern section dry, rainfall 10 inches.

Chief Cities.—Olympia (capital,) Walla Walla, Seattle, Tacoma.

Leading Industries.—Agriculture, lumbering, grazing, mining etc.

WISCONSIN.

"Badger State." Settled first by French at Green Bay, 1669. Formed part of the Northwest territory. Included in Indiana Territory, 1800. Became part of Michigan territory, 1805. Wisconsin territory organized 1836. Present boundaries fixed 1838. Admitted as state, May, 1848. Seventeenth state to join Union. Number Union soldiers furnished, 91,327. Number counties, 66. All elections Tuesday after first Monday in Nov.; number senators 33, representatives 100; sessions biennial, in odd-numbered years, meeting second Wednesday in Jan.; term of senators 4 years, of representatives 2 years. Number electoral votes 11, number congressmen 9, number voters 340,482; insane, idiots, convicts, bribers, betters and duelists excluded from voting. Number colleges 7, number public schools 6,588, school age 4-20 years. Legal interest 7 per cent., by contract 10 per cent, usury forfeits entire interest.

Topography, Area, Soil, Products, Etc. — Extreme length N. and S. 298 miles, width, 260 miles, area 54,450 sq. miles, 34,848,000 acres. Besides the great lakes Michigan and Superior, the state contains Green Bay, Winnebago, Geneva, Devil's lake and innumerable other lakes in the central and northern sections of the state, of unsurpassed beauty, making the state a favorite place of summer resort. Much of state prairie, but enormous stretches of magnificent pine and hardwood timbers remain untouched. Soil excellent and adapted to farming, dairying and stock raising. Fruit and berries fine crop. Cranberries largely raised. Wheat best crop, flax, buckwheat, hay, corn, oats staples. Lead mines Grant Lafayette and Iowa counties; native copper in Crawford and Iowa counties; iron ores in Dodge, Sauk, Jackson and Ashland counties. Ranks second in hops, third in barley and potatoes, fourth

in rye and buckwheat, fifth in oats and agricultural implements. Improved land averages $18 and unimproved $10 per acre.

Climate.—Temperature averages winter 20 deg., summer 71 deg., ranges from 32 deg. below zero to 95 deg. Rainfall 31 inches, including snow. Snows heavy, especially at north; spring late, summer short, fall pleasant.

Chief Cities.—Milwaukee, port of entry, great beer-brewing center; Madison (capital), Eau Claire, Fond du Lac, Oshkosh, La Crosse.

Leading Industries. — Lumbering, farming, mining, manufacturing, brewing, pork-packing, dairying, etc.

DISTRICT OF COLUMBIA.

Named for Columbus. First as seat of U. S. government 1790 by act of Congress. Formed out of Washington Co., Md. (64 sq. miles). Government removed to District 1800. Captured by British 1814, and capitol, executive mansion and congressional library burned. Governed by Congress till 1871, when a legislative body of 33 (11 appointed by the president and 22 elected) was created. Executive officers still appointed by president. Officers appointed are paid by the United States, those elected, by the District. Citizens of District have no vote for national officers. Schools superior. Legal interest 6 per cent., by contract 10, more forfeits entire interest. Population, 1880, 177,638. Miles railroad, 18. Surface made up of flats and hills. Similar in all features and products to Southern Maryland. Cities.—Washington (capital U. S.), pop. 147,307, Georgeton, pop. 12,578.

THE WHITE HOUSE AT WASHINGTON, D. C.

The White House, at Washington, D. C., is 170 feet long by 86 feet wide. The largest apartment, known as the east room, is 80 by 40 feet in dimensions and 22 feet high. The adjoining blue room, finished in blue and gold, is devoted to receptions, diplomatic and social. The green and red rooms, so called from their finishings, are each 30 by 20. The rooms on the second floor are occupied by the executive office and the apartments of the President's family.

THE WASHINGTON MONUMENT.

The corner-stone was laid by President Polk, July 4th, 1848, and December 6, 1884, the cap-stone was set in position. The foundations are 126½ feet square and 36 feet 8 inches deep. The base of the monument is 55 feet 1½ inches square, and the walls 15 feet ¼ inch thick. At the 500-foot mark, where the pyramidal top begins, the shaft is 34 feet 5½ inches square and the walls are 18 inches thick. The monument is made of blocks of marble 2 feet thick, and it is said there are over 18,000 of them. The height above the ground is 555 feet. The pyramidal top terminates in an aluminum tip, which is 9 inches high, and weighs 100 ounces. The mean pressure of the monument is 5 tons per square foot, and the total weight, foundation and all, is nearly 81,000 tons. The door at the base, facing the capitol, is 8 feet wide and 16 feet high, and enters a room 25 feet square. An immense iron framework supports the machinery of the elevator, which is hoisted with steel wire ropes two inches thick. At one side begin the stairs, of which there are fifty flights, containing eighteen steps each. Five hundred and twenty feet from the base there are eight windows, 18x24 inches, two on each face. The area at the base of the pyramidal top is 1,187¼ feet, space enough for a six-room house, each room to be 12x16 feet. The Cologne Cathedral is 525 feet high; the pyramid of Cheops, 486; Strasburg Cathedral 474; St. Peter's at Rome 448; the capitol at Washington, 306, and Bunker hill monument, 221 feet. The Washington monument cost $1,500,000 and was the highest structure in the world prior to the completion of the Eifel Tower in Paris, which is 984 feet in height.

WYOMING.

First settlement, Fort Laramie, 1867. Territory, 1868. State, 1890. Number counties, 9; all elections Tuesday after first Monday in November; number senators 12, representatives 24; sessions biennial, in even-numbered years, meeting second Tuesday in January, hold 60 days; terms of senators and representatives 2 years each; voters 10,180, native white 6,042, foreign white 3,199, colored 949. Good school system started, school age 7-21. Legal interest rate 12 per cent., by contract any rate.

Length 350 miles, width 275 miles, area 97,575 sq. miles, 62,438,000 acres. Surface traversed by Rocky Mountains, forming the continental divide, and is high and mountainous, varying in elevation from 4,800 to 12,000 feet. At the N. W. is the Yellowstone National Park, 3,600 sq. miles in area, and one of the greatest natural

wonders of the continent. It varies from 6,000 to over 12,000 feet in elevation, and its scenery is one vast panorama. Along the streams and in the valleys are tracts of arable lands which may be made to produce prolifically with irrigation. Mountains, covered with forests of considerable extent, contain precious and base minerals in great deposits. Soil, where water can be had, is good, soil chiefly suited to grazing. Half the Territory grazing land. Wheat, rye, oats and barley flourish, frost two frequent for corn. Water plentiful, game and fur-bearing animals numerous, iron ore abundant, mainly red hemantite. Copper, lead, plumbago and petroleum found, gold in the Sweetwater country and near Laramie City, valuable deposits of soda in valley of the Sweetwater. Coal abundant and of good quality at Evanston, Carbon, Rock Springs and other points. Climate cold, severe in mountains, milder in valleys. Healthful, air pure, dry and bracing. Rainfall, 15 inches. Temperature averages, summer 66 deg., winter 18 deg., ranges from 31 deg. below to 80 deg. above. July warmest month, January coldest, latter averages 10 deg.

Chief Cities.—Cheyenne (capital), Laramie

Chief Industries.—Grazing, mining and agriculture, but little is done in manufacturing. Immense oil wells have been recently discovered.

How Poor Boys Become Successful Men.

You want some good advice. Rise early. Be abstemious. Be frugal. Attend to your own business and never trust it to another. Be not afraid to work, and diligently, too, with your own hands. Treat every one with civility and respect. Good manners insure success. Accomplish what you undertake. Decide, then persevere. Diligence and industry overcome all difficulties. Never be mean—rather give than take the odd shilling. Never postpone till to-morrow what can be done to-day. Never anticipate wealth from any source but labor. Honesty is not only the best policy, but the only policy. Commence at the first round and keep climbing. Make your word as good as your bond. Seek knowledge to plan, enterprise to execute, honesty to govern all. Never overtrade. Never give too large credit. Time is money. Reckon the hours of the day as so many dollars, the minutes as so many cents. Make few promises. Keep your secrets. Live within your income. Sobriety above all things. Luck is a word that does not apply to a successful man. Not too much caution—slow but sure is the thing. The highest monuments are built piece by piece. Step by step we mount the pyramids. Be bold—be resolute when the clouds gather, difficulties are surmounted by opposition. Self-confidence, self-reliance is your capital. Your conscience the best monitor. Never be over-sanguine, but do not underrate your own abilities. Don't be discouraged. Ninty-nine may say no, the hundreth, yes: take off your coat: roll up your sleeves, don't be afraid of manual labor! America is large enough for all—strike out for the west. The best letter of introduction is your own energy. Lean on yourself when you walk. Keep good company. Keep out of politics unless you are sure to win—you are never sure to win, so look out.

Fire Insurance.

HOW INSURANCE IS CONDUCTED, Losses Adjusted,

THE BURNING OF CHICAGO, OCT. 9, 1871.

Proof of Loss, POLICIES, AGENTS' REPORTS, ETC., ETC.

THE earliest mention of anything like insurance as conducted at present was among the Anglo Saxon guilds or unions, who, in return for specific contributions, guaranteed each other "against loss from fire, water, robbery or other calamity."

The next allusion is in a speech of Lord Keeper Bacon, at the opening of the first parliament of Queen Elizabeth, in the following words: "Doth not the wise merchant in every adventure of danger give part to have the rest assured?"

But it was not until after the great fire of London, in 1666, that we find insurance assuming a definite shape. In 1681, the first regular office for insurance was opened in London. The Hand in Hand Contributionship Society was started in 1696 and still survives. Insurance companies were established in Scotland in 1720, in Germany in 1750. In Philadelphia, Benjamin Franklin was one of the organizers and first directors of a fire insurance company in 1752. France followed in 1816, and Russia in 1827.

Early insurance was mere gambling, in the 17th and early part of the 18th centuries. In 1694, a marriage portion of $1,000 was offered to single men and women upon the payment of 50 cents a quarter until married. A sharp couple immediately subscribed, were married at once, claimed their $2,000, and wrecked the company. Companies were organized for all imaginable insurance, such as insurance against housebreaking, insurance against highwaymen, assurance from lying, assurance of horses against sickness, death or accident. This last company had a nominal capital of ten million dollars.

The insurance of that day was simple gaming, for the reason that the parties insuring had no insurable interest in the property or persons insured.

As an instance, in 1765 some speculator imported 800 men, women and children from Franconia and Suabia and left them in Goodman's Fields, without money, shelter, food or friends. Some of them died on the third day, and immediately numerous wagers were laid as to the number who would die per day and week.

This was gambling in human life without a single feature of life insurance, except a sum of money payable at the death of a certain party.

Insurance is a contract by one party to indemnify another party for loss or damage to his property during a certain specified period.

The contract itself is called a *policy* and the consideration paid is termed the *premium*.

The party issuing the contract or *policy* is called *insurer* or *underwriter*, and the other the *insured* or *assured*.

The latter is the more correct term, as the indemnity is *for* loss or damage and not *against* them. It is not a guard against calamity, but aids in softening or alleviating the results arising from it.

Insurance promotes commerce, manufactures and business enterprises generally, by sharing the results of calamities, the very prospect of which would deter many from making the venture.

It divides losses that would completely wreck individual fortunes among a large number of persons and corporations, so that the loss is slightly felt by any.

In fact insurers are nearly always incorporated companies.

These companies are of two kinds, mutual and joint stock companies.

In a joint stock company the capital is limited to the amount named in the articles of incorporation or charter, and is divided into shares owned by stockholders, and transferable. The affairs of the company are administered by a president, secretary, and other officers, and a board of directors, selected by the stockholders.

In a mutual insurance company the capital consists of the deposit notes of its members, by the part of premiums paid in cash and the profits upon investments.

The insured in a mutual company becomes a member of the company by the mere act of insurance.

In a joint stock company the premiums are collected at the time of effecting the insurance. In a mutual company they are for the most part collected after the loss by assessment upon all the members of the company.

Insurance companies are generally known by the names of casualties for which they indemnify the loser. Hence we have fire insurance, life insurance, accident insurance, health insurance, plate-glass insurance, marine insurance, and inland marine insurance companies.

In fact, as we have seen in the commencement of this chapter, that companies and organizations have been made to indemnify for loss or damage from almost any and every conceivable cause, such as hail, tornadoes, accident or disease of live stock, honesty of employes and public officers.

Fire insurance is, as its name denotes, a contract to indemnify for loss by fire up to a certain amount named in the policy, in return for a specified consideration. The contract or policy provides "that the company will not be liable for loss or damage by fires caused by an invasion, insurrection, riot, civil commotion, military or usurped power."

The effect of this clause is that as the rate of premium is calculated for a peaceable, law-abiding community, the policy becomes null and void when civil authority is dethroned and anarchy or military power takes its place.

The policy further provides that the insured must have a clear title to or at least an equitable or insurable interest in the property insured, another provision in the interest of public policy, as temptation consequent upon insuring another's property would be to see that it was destroyed.

Another provision in the contract is, that "no premises thus insured nor any part thereof shall be used for or to carry on any unlawful traffic, trade or business."

This provision is needful to protect the company from the moral hazard of the insured destroying his own premises when tracked too close by the law and then getting indemnity for the self-caused loss or damage.

Another provision nullifies the policy when certain articles are kept upon the premises, articles which ignite spontaneously, or at a low temperature or are explosive, or the keeping of which is forbidden by municipal regulations, such as naptha, gasoline, varnish, camphene, gunpowder, etc., unless specially provided for in the contract by written indorsement.

All these clauses and conditions are demanded by the public safety and in the interest of good morals and government.

Another condition imposes upon the insured the duty of using his best endeavors to save and protect the property when exposed to, at and after the fire, and also, that there can be no *abandonment* of the property to the company.

This is in consonance with the principle, the soundness of which cannot be disputed, that the insured must not under any circumstances make a profit by loss or damage by fire.

The other provisions of the contract refer to notice to the company in case of loss, and the manner of proving amount of the loss or damage and settlement of the claim.

Notice of loss must be given forthwith to the company or one of its agents, and within thirty days the insured must render a particular account of his loss, duly signed and sworn to, stating the time, origin and circumstances of the fire, the title, cash value, all other

insurance upon the property, and amount of loss or damage and a certificate from the nearest magistrate, notary public, or the chief of the fire department (if there be one) stating that he knows the circumstances attending the fire and believes the assured has honestly lost the amount stated by assured.

In case property is damaged by the fire or water thrown upon the property, or by removal, the property so damaged is to be separated from that not damaged and a list thereof made stating amount, cost, cash value and damage thereto.

All these provisions are to aid the adjusting agent of the company in arriving at an accurate and speedy settlement of the claim.

Adjusting claims is a peculiar business, and the adjuster is too frequently considered as a kind of shark whose business is solely to cheat and defraud the insurer who has been unfortunate enough to have a loss.

The adjuster needs to know human nature "like a book," have an extended knowledge of values of many kinds of property, a temper that cannot be ruffled by insult, and an abundance of common sense and tact.

His instructions from the company are very rarely specific, but general and very brief.

1st. Ascertain as nearly as possible the *exact amount* of the loss.
2d. Investigate origin and all the circumstances attending the fire.
3d. Find out whether claimant is honest or a rascal, and his loss an honest claim or not.
4th. If honest pay it. If dishonest fight it, unlesss it can be compromised for a less sum than it will cost to whip it at law.

It is to the advantage of the company to settle *all claims* speedily and in a manner to make friends.

Self interest is opposed to dilatory settlements and litigation, and no company allows a claim to drift into the courts, except where it feels obliged to fight from motives based in regard to good morals and sound public policy.

This applies to marine, life, fire and accident companies alike.

Unresisted fraud is contagious, and endangers public morality and safety.

This subject of insurance frauds will be treated of farther on.

As soon as the agent has agreed with the insured as to amount to be insured and rate of premium, he makes out the written part of the policy, with date of commencement and expiration of the risk, and countersigns it as agent.

He then enters the written part of the policy, and the other information in his policy register (furnished by the company) about as follows:

NATIONAL INSURANCE COMPANY.

No. Policy and Renewal.	No. Policy Renewed.	Name and Residence of Assured.	Term.	Commencem't of Risk.	Expiration of Risk.	Copy of Written portion of Policy. (Let the copy be full and exact.)	Amount Insured.	Rate.	Amount Prem.
7658	*3465*	*Henry H. Brown.*	*1 Year*	*March 12,'* .	*March 12,'*	*On his stock of merchandise, consisting chiefly of dry goods, notions, gent's furnishings, clothing, hats, caps, boots and shoes, contained in two-story gravel-roofed brick building, situated 41 Main St., Fairfield, Iowa.* *$5000 other insurance concurrent herewith permitted.*	*$2000*	*1½*	*$30.00*

This done he proceeds to fill out his Daily Report to the Company, as follows:

NATIONAL INSURANCE COMPANY.

No. *7658.* Last insured by this Co. under No. *3465.* (If Co. has ever had this risk before give No. of last policy.)

(Form 4.)

Agency at *Fairfield, Iowa.*

GRANTS INSURANCE

Sum insured, $2000.

Old rate 1½, New 1½.

Premium, $30.00

To *Henry H. Brown*, of *Fairfield, Iowa.*

As follows: *On his stock of merchandise, consisting chiefly of dry goods, notions, gent's furnishing goods, clothing, hats, caps, boots and shoes, contained in two-story gravel-roofed brick building, situated 41 Main Street, Fairfield, Iowa.*

$5000 other insurance concurrent herewith permitted.

Term of *one* year, from *March 12, 18* , to *March 12, 18* .

Answer these questions fully, and always give precise wording of written portion of policy, even in case of renewal. Know who, what, and where you insure.

Has this risk been declined by any other Company or Agency? *No.*

Is there other insurance? *Yes.* Give Companies, amount and rate.

Citizens, N. Y., $2000, 1½. Home, N. Y., $2000, 1¼. Ætna, Ct., $1000, 1½.

Are all the Policies worded precisely alike? *Yes.* Has this Co. other insurance within 100 feet? *Yes.* (Give No. of Policies, Amount and Distance.)

Policy No. *3597, $1000*, distant *50* ft. Policy No. *6325, $2000*, distant *80* ft.

If on building, has assured title by deed? *Yes.*

Is property incumbered? *Yes.* How much? *$1500.*

How much is the incumbered property worth? *$8000.*

Have you personally inspected this risk? *Yes.*

How far is the risk from your office? *Two blocks.*

Is risk within reach of fire department and water supply? *Yes.*

L. B. SHARP, Agent.

ANSWER ALL THESE QUESTIONS FULLY.

How long has the insured resided at your place? *15 years.* If on buildings, how old? *About 7 years.* Do you know and fully recommend the insured as unquestionably reliable and trustworthy? *Yes.* Is he free from litigation and financial embarrassment? *Yes.* Is he doing a profitable business? *Yes.* What is the present cash value of the property insured? *$8000.* Has assured ever suffered by fire? *Yes.* Is building occupied by its owner or tenant? *Tenant.* What is used for lights? *Kerosene.* Are the stove pipes, flues, and chimneys secure? *Yes.* Are the walls between each tenement without openings? *Yes.* Do the division walls rise above the roof? *Yes.* How far? *12 inches.* What kind of roof has building insured or containing insured property? *Gravel.*

Occupation of premises: Basement? *Storage.* First story? *Risk.* Second story? *Dwelling.* Third story? Fourth story?

Exposures within 100 feet: North *adj.* feet to *2 S. B.*, used for *store.* South *alley 20* feet to *2 S. D.*, used for *barber shop.* East *street.* West *100* feet to *small D barn.*

At the end of the month the agent makes up his "Monthly Account Current," in the following, or a similar form.

NATIONAL INSURANCE COMPANY.

RETURN FOR MONTH OF *March, 18* ,

Agency at *Fairfield,* State of *Iowa.* *E. B. Sharp,* Agent.

No. of Last Policy or Renewal.	Consec. No. Policies & Renewals.	NAME & RESIDENCE OF ASSURED.	Date of Policy. Day.	Date of Policy. Month	Time	Expiration. Day.	Expiration. Mo.	Expiration. Yr.	Amount of Policy.	Rate.	Premium.
	7656	*John Brown*	2	*March*	3 *yrs.*	2	*Mar.*	1886	5000	1	$50.00
	7657	*John Smith.*	8	"	1 "	8	"	1884	3000	2	60.00
3465	7658	*Henry H. Brown,*	12	"	1 "	12	"	1884	2000	1½	30.00

ACCOUNT CURRENT for Month of March, 18 .

By Balance due Company at last report.....		$
" Premiums for current month.....		140 00
"		
DEBIT ITEMS.		$a
To Balance due agency at last report.	$ 21 00	
" Commission on $140 premium, 15 per cent.....	33	
" Expressage, $..... Postage, $...		
" Return Prem. Policy No..., less commis'n $...		
" " " " " ... " " $ ..		
"		
" Inclosed Draft on First National Bank...	118 67	b

Balance due Company forward to next report, $..... c

(*a*) Put footings of credit. (*b*) Put footings of debit. (*c*) Balance, if any.

☞ Make checks or drafts payable to the order of the National Insurance Company. Send your personal check and save us exchange. Send no currency at our risk. For small amounts use postal money orders. Name the bank on which draft or check is made. Vouchers must accompany every charge.

The second column of within report should contain every number consecutively, from the number last reported to the last number of this report. If a policy or renewal is "not taken" or "canceled," or for other reasons not to be included in report, enter the number and put explanation opposite. Every number must be accounted for in its order.

Send this return promptly with close of month, and enter a copy of this account current on your Register, with date of mailing.

In case of insurance upon manufacturing risks, where peculiar hazards enhance the rate of premium, the assured is required to fill out a blank of from 20 to 50 questions which is called a survey.

These questions are pertinent to the risk in question and designed to give the company as good an idea as possible of the risk assumed, such as kind of power employed, security of steam boiler house, velocity of machinery, especially of any runs in wooden boxes, kind of lubricant, disposition of dirt, waste and oily rags, etc., etc.

Some companies refuse to be bound upon such factories until after survey has been received, inspected and risk accepted.

Every company has its own list of prohibited risks, copies of which are sent to the agent for his guidance. These vary. One company makes money on a class of risks where another meets only losses.

Every company aims to make money on each class of risks, when taken in periods of say ten years.

Many companies keep their experience tables of losses and premiums upon separate classes of risks sacredly guarded even from their own employes. Hence no such average tables of the results of fire insurance are obtainable as we have of life insurance experience.

Fire insurance, consequently, has not become in any sense an "exact science" and cannot be until personal jealousy has been laid aside and companies combine, more than in the past, for mutual education and aid.

At present an element of chance or luck seems not wholly eliminated from the problem of ratio of premium to hazard.

One quantity is now and always may be indeterminate, and that is the moral hazard, although it has its value in the problem, and that value should be determined.

At present companies can only avoid it as far as possible by continued repetitions to local agents of the precept, "Do not insure anything for more than three-fourths its cash value." "Let the insured be a sharer to at least that extent."

But greed and ignorance too frequently combine in the local agent to heed the rule.

An instance known to the writer is in point. A merchant built himself a home, and insured it, of course. The supervising agent saw a finely-painted handsome dwelling.

Fire came mysteriously. Extinguished once, it started again, and the third time only did it succeed.

The adjuster, who had also been the supervising agent, found only a pile of ashes. The owner bewailed his homeless situation, and extolled the beauty and comfort and value of the home built to shelter his family, as he had hoped, for long years.

Investigation proved that paint had, like charity, "covered a multitude of sins." Accidentally the adjuster learned that the sills and all the timber had been bought after years of use at the bottom of lumber piles. The lumber was the debris of another lumber yard. Shingles had cost only 50 cents a thousand and everything except paint and nails in proportion, while the furniture had come from a second-hand store. The builder and all but one man who worked on the house had left the state, and the agent, who had insured only the modest sum of $3,500 on a house that really cost about $1,500, found that he had been fooled and his companies engaged in a long and expensive strife.

The note books of every adjuster are full of just such instances of property built and furnished to sell to insurance companies.

In another case known to the writer the adjuster

went to pay for a farmer's barn, grain, horses, agricultural implements, etc., etc. People in town and country spoke highly of the poor fellow. The adjuster found his man suffering from a burned face and hands, incurred while trying to save his horses, and with these evidences did not dream of anything save honesty; however, for form's sake, he had the insured sworn as to the facts in the case, other insurance, etc., drew his check upon the company and departed for the next loss.

He was recalled by a dispatch from his local agent, and found another adjuster for another company, who had come to pay the same claimant upon a policy taken by another agent.

By chance the same notary was employed and said, "Why, Mr. C. paid for this loss, and he (the claimant) swore then that he had no other insurance." Mr. C. was telegraphed for.

To adjuster No. 2 claimant swore he had no insurance except that in his company, and in answer to the question whether he had not been insured in company No. 1, he declared on oath, that he had never heard of such a company. The upshot in this case was that he gave adjuster No. 1 the check he had received and paid both adjusters for their time and expenses, so that his triple crime availed him nothing, but cost him the loss of his property and three hundred dollars besides.

As previously shown, the first duty of the assured in case of loss is to notify the company through its local agent. His second, to prepare a statement of the amount of his loss or damage. The company, in any considerable loss, sends its adjuster to look into the loss and all attending circumstances. Appended herewith is a "Proof of Loss," to which should be attached a full list of property destroyed and also all damaged articles with loss on each.

The damage or loss is usually settled by mutual agreement of assured and the adjuster.

If they cannot agree, arbitrators may be selected, one by each party, and these chosing a third.

FORM OF A PROOF OF LOSS.

TO THE

GLENS FALLS INSURANCE COMPANY,

OF GLENS FALLS, NEW YORK.

United States of America.

State of *Indiana*, } ss.
County of *Marion*. }

Be it Known, That on this *seventeenth* day of *June*, A. D. 18 , before me, *John Jones*, a *notary public*, duly commissioned and sworn, and residing in the *City* of *Indianapolis*, in the County and State aforesaid, and authorized by law to administer oaths therein, personally appeared *Andrew V. Green*, who, being duly sworn, depose and say, and each for himself says, that the following statement and the papers therein referred to, are signed with *his* own hand, contain a particular, just, and true account of *his* loss, in the words and figures following, to wit:

I. That on the *15th* day of *October*, A. D. 1882, the **Glens Falls Insurance Company**, of the Village of Glens Falls, by their Policy of Insurance, numbered 11,361, issued by *Premium & Co.*, said company's agents at *Indianapolis*, in the State of *Indiana*, did insure the party herein and therein named against loss or damage by fire, the written part of said policy, and of all changes thereof since issued, being precisely as follows, viz.:

[Give the written portion of the Policy in full, and also copy in full of all indorsements, assignments, alterations, etc., which may have been made since policy was issued.]

$4,500, *on his stock of dry goods, hats, caps, and gent's furnishing goods.*
$3,00 *on his office furniture, and*
$200 *on his safe, all contained in the three-story brick, metal-roof building, situate No.* 10 *North Jones Street, in the City of Indianapolis, Ind.*

For the term of *one year* from the 15*th* day of *October*, A. D. 1882, to the 15*th* day of *October*, A. D. 1883, at noon, which said Policy was subsequently continued in force, by renewal, until the.....day of.....A. D. 18.., at noon.

II. That in addition to the amount covered by said Policy of said Company, there was no other insurance made or existing on said property or any part thereof whatever, except as particularly specified in the annexed "Schedule A," showing the name of each Company, and the written portions of each Policy, and all changes therein since the Policies were issued.

[See Note No. 1.]

III. That at the time said Policy was issued the title to said insured property, and the incumbrances and liens thereon, stood as follows, viz: *Title in said Andrew V. Green, without any incumbrance or liens thereon*, and no other person or persons had any right, title, or interest of, to, or in said property, or any part thereof, whatever.

[See Note No. 2.]

IV. That at the time of the fire hereinafter mentioned the title to said insured property, and the incumbrances and liens thereon, stood as follows, to wit: *In said Andrew V. Green, and absolutely unincumbered*, and no other person or persons had any right, title, or interest of, to, or in said property, or any part thereof, whatever; nor has there been any change in said title or interests; nor has there been any liens of any kind, on any of said property, since said Policy was issued, except as above specifically stated.

V. The said holders of said incumbrances and liens at the time said Policy was issued, and at the time of said fire, respectively, had no insurance on said property, or any part thereof, except as particularly stated in annexed "Schedule A."

[See Note No. 1.]

VI. That the building insured or containing the property destroyed or damaged was occupied in its several parts, at the time of the fire hereinafter mentioned, by the parties hereinafter named, and for the following purposes only, to-wit:

Basement—Storage, Country Produce. G. W. Farmer.
1st Story—A. V. Green. Store.
2nd—Several parties. Law offices.
3d—G. T. Brown. Dwelling.

And deponent says further, that there has been no change in the occupancy or use of the buildings, nor has there been any other building erected within one hundred feet thereof, nor has the occupation or use of any building within one hundred feet become more hazardous, nor his the hazard or risk of insured buildings been otherwise increased in any manner since the issuing of said Policy.

VII. That the actual cash value of the property named in those items of said Policy upon which loss or damage is claimed in the next section, estimated under all the circumstances of age, condition, and circumstances of location and market, at the time immediately preceding said fire, was as follows, viz.:

Value of *Merchandise*..... $7,500...
Value of *Office Furniture*..... $ 350...
Value of *Safe*..... $ 600...

As will more fully and particularly appear in the annexed "Schedule B," which gives a full and accurate description, and a true itemized valuation of each building and article for which claim is made, with the amount of loss and damage on each, stated separately.

[See Note No. 3.]

VIII. That on the 10*th* day of *June*, A. D. 18 , at about 2 o'clock A. M. a fire occurred by which the property insured was injured or destroyed to the extent of the following amounts on the following named items of said Policy, for which the following named sums are claimed, viz.:

Total Loss on each Item of Policy.	ITEMS OF POLICY.	Amount of Claim.
$2,750...	on *Dry Goods*	$2,750...
$ 783.60	on *Hats and Caps*.....	$ 783.60
$ 376.40	on *Gent's Furnishing Goods*..	$ 376.40
$ 231.50	on *Office Furniture*.....	$ 231.50
$ 350.00	on *Safe*	$ 200.00
$4,491.50	Total Loss with Total Claim on Company for....	$4,341.50

as herein and in the statements and the several schedules and papers hereunto annexed particularly set forth, all of which are made a part of this proof, and which the deponent declares to be a just, true, and faithful account of *his* loss, as far as *he* has been able to ascertain the same.

[Give loss under each item of the Policy, as "Dwelling," "Household Furniture," etc., and amount of claim on each item of policy.]

IX. That the fire originated *in the second story of the building, from some cause unknown to said deponent, but supposed to be an overheated stove.*

The said deponent further declares that the said fire did not originate by any act, design, or procurement on *his* part, nor on the part of any one having an interest in said property, or in any insurance thereon, nor in consequence of any fraud or evil practice done or suffered by *him* and that nothing has been done by or with *his* privity or consent to violate the conditions of insurance, or render void the Policy aforesaid, and that *he* will furnish, whenever required by said Glens Falls Insurance Company, full particulars, exhibiting the construction of the building containing the property insured, its dimensions and condition at the time of the said fire, and such additional information concerning said insured property, the damage thereto, and the insurance thereon, as well by means of books of accounts and other vouchers furnished, as by replies to interrogatories made, as shall be required by said Company.

[State all you know about the origin of the fire, fully; and, if origin or cause of fire is not known, give the general supposition.]

Witness *my* hand at *Indianapolis*, in the County of *Marion*, and State of *Indiana*, this 17*th* day of *June*, A. D. 18 .

Subscribed and sworn to before me, this 17*th* day of *June*, A. D. 18 .

{ *Seal.* }

JOHN JONES,
Notary Public.

INSTRUCTIONS.

NOTE 1.—In case of other insurance on the property or any part of it, by owner, mortgagee, or other person having any interest in or lien upon it, Schedule A must give the name of the Companies, date and term, rate, and amount of premium paid, and a full copy of the written portion of each Policy, and of all changes by indorsement, assignment, or otherwise, which may have been made since Policy was issued.

NOTE 2.—Sections III. and IV. must show whether title is in fee simple, or whether held by contract, lease, or otherwise, as fact may be; also all incumbrances by mortgage, judgment, builders' or other liens, amounts thereof, severally, with names of parties holding same. In case of property held in trust, or on commission, state (using a Schedule if necessary) the names of the owners, and the marks and numbers.

NOTE 3.—Schedule B should give an itemized statement of everything destroyed or damaged, with the value in one column, and the loss or damage in another, grouped under the several items of the Policy by which the thing is claimed to be covered. The totals of the value of each group to be also entered in Section VII., as "value of dwelling," "household furniture," "barn No. 1," "farm produce therein," etc., etc. Schedule B should also give age, size, height of posts, materials of, condition of repair, etc., etc., of all buildings, and a descriptive mention of each item of property.

NOTE 4.—Attach all Schedules and other papers pertaining to this proof firmly and securely to this blank by mucilage or fastener.

MAGISTRATE'S OR NOTARY'S CERTIFICATE.

Officers are cautioned to carefully read and thoroughly understand the nature and responsibility of this official certificate.

State of *Indiana*, } ss.
County of *Marion*. }

I. *John Jones*, residing in *Indianapolis*, and the most contiguous officer to the property within described, hereby certify that I am not concerned in the loss or claim above set forth, either as creditor or otherwise, or related to the insured or sufferers; that I have examined the circumstances attending the fire, or damage as alleged, and that I am well acquainted with the character and circumstances of the insured, and do verily believe that *he* has, by misfortune, and without fraud or evil practice, sustained loss and damage on the property insured to the amount of *Four Thousand Four Hundred Ninety-one* 50-100 dollars.

In Testimony Whereof, I have hereunto set my hand and official seal, this *Seventeenth* day of *June*, A. D. 18 .

{ *Notarial Seal.* }

JOHN JONES.
Notary Public.

Every careful company has its risks inspected by a "supervising agent."

With most companies the same "special agent" unites the duties of supervisor and adjuster.

The duties of the supervising agent are to look closely into the physical hazard, see if anything liable to spontaneous combustion is stored or kept on the premises—in short, to gain as full knowledge of everything affecting the hazard as he can, as well as the business standing and repute of the assured. The form of report varies with companies. Appended we give a sample:

SUPERVISING AGENT'S REPORT.

THE NATIONAL INSURANCE COMPANY.

Agency at *Jamestown, Ill.* Name of Assured, *A. B. Franklin.*

Location, 46 *East Main St.*, Policy No. 65, Amount $1,500, Rate 1¼, Renewal No. ...., Expires, *Nov.* 17, 18 , Description, *On his Printing Presses, Card Cutters, Paper Cutters, Type and such other materials as are usually used in printing offices. On 3d floor of 3-story brick building.* Block of 2, Stories, 3; Fire Walls, *East;* Roof, *Composition;* Cornice, *wood;* Iron Shutters, *No;* Basement, ...; 1st floor, *Dry Goods;* 2nd floor, *Offices, Millinery;* 3rd floor, *Risk. Small portable boiler, well secured, brick beneath.* Exposures, N. *St.* 80 *ft. to brick store;* S. *Isolated;* E. *Separate fire wall, double;* W. *St.* 66 *feet to 2-story brick bank.* Date of Survey, *March* 15, 18 . Remarks, *Good, clean. 1 quart Benzine only. Rate on Renewal 2½. In such risks nothing can be saved in case of fire. Doing profitable business.*

It will thus be seen that insurance companies exercise all possible care of inspection and supervision. Should the supervisor see anything unsafe that the assured can remedy, he calls attention to it and asks that the change be made, giving his reasons. Oily waste used to wipe off machinery and thrown aside in a corner he looks sharply after, knowing how often it bursts into a flame. Sawdust and oil will ignite in sixteen hours in a hot room. Cotton, saturated with linseed oil, in from six to ten hours. Iron and brass scraps or shavings, when oily, are liable to spontaneous ignition.

In short, cleanliness and tidiness are essential to safety. No rate can be safely fixed for a dirty risk.

The Minneapolis flour mill explosions only confirmed the previously entertained beliefs of experienced underwriters, although even they had failed to appreciate the terrible power of diffused flour, flour-mill dust, dust from shavings, etc. It required the actual demonstration by after experiment to establish the fact that *50 lbs of fine wheat flour diffused through 4,000 cubic feet of air had, on the application of flame, the power to lift 250 lbs 80 feet high.*

At the Washburn Mill, a pair of mill stones, or burrs, were lifted and thrown over and outside the debris to a distance of forty feet.

Hence, the reason why insurance companies and agents so often cry "Clean up," and, as it seems to many, are over zealous in preaching the gospel of cleanliness. Tidiness is safety in the farm house, city dwelling, shop, store, and factory, and inasmuch as property burned is gone—just so much abstracted from the fruits of industry—it should not be as hard a lesson to learn as it is that lack of cleanliness costs the people of these United States millions of dollars every year.

Life Insurance.

LIFE INSURANCE has various forms of policy or contract, all of them, however, containing the one idea of a fixed sum paid at death of the party insured. The several forms are as follows:

1st. A Policy issued to a person *on his own life*, payable at death to his executors, administrators or assigns.

2d. A Policy issued to a wife (or to a husband for a wife) on the life of her husband, payable at his death to the wife for her own use, free from the claims of the husband's representatives or creditors. This kind of policy is made payable, should the wife die before the husband, to his or her children.

3d. Endowment Insurance Policies are issued, payable in a certain number of years to the assured, or should death occur before maturity, to his children or wife.

LIFE POLICIES ON THE TEN PREMIUM NON-FORFEITING PLAN.

Ten annual premiums secure a paid-up Life Policy, while the full amount of the policy will be paid if the party insured dies before completing the ten payments.

If, after the receipt by the company of not less than three annual premiums, the policy should cease in consequence of the non-payment of premiums, then upon the surrender of the same, within six months, the company will issue a new policy for the full value acquired under the old one; that is to say, if three annual premiums have been paid, the company will issue a policy for *three-tenths* of the sum originally insured, and in the same proportion for any number of payments, without further charge.

EXAMPLE.

Ten payments	secure a	paid-up	policy	of	$1,000,	.....	payable	at death.
Nine	"	"	"	"	900	.....	"	"
Eight	"	"	"	"	800	.....	"	"
Seven	"	"	"	"	700	.....	"	"
Six	"	"	"	"	600	.....	"	"
Five	"	"	"	"	500	.....	"	"
Four	"	"	"	"	400	.....	"	"
Three	"	"	"	"	300	.....	"	"

4th. Life Policies paid up by fifteen or twenty annual premiums, non-forfeitable after three years, are issued. Also, Endowment Insurance Policies on the same non-forfeiting plan. This class of insurance especially commends itself to debtors, who can thus provide by installments for the liquidation of their debts at a given time, and yet, in the event of death, secure to their creditors the full amount of their claims.

5th. Annuity Policies are issued, by which the company guarantees, in consideration of a certain principal sum paid to the company, to grant a certain annual allowance or annuity during the life of a person who shall have paid such principal sum. This allowance depends upon the age of the person or annuitant at the time the principal sum is paid to the company—the older the annuitant the greater the yearly allowance that the company stipulates to pay.

DOUBLE ENDOWMENT for TWENTY YEARS.

A Double Endowment is a twenty year endowment assurance policy, which will yield to the holder of it, at maturity, double the amount insured in the event of death, and is the best form of endowment ever offered to those who are more desirous of receiving a large sum for their own use in advanced years, than of leaving it to their heirs in the event of their early death.

SEMI-ENDOWMENT FOR TWENTY YEARS.

A Semi-Endowment is a twenty year endowment assurance policy, which will yield to its holder, at maturity, half the amount insured in the event of death.

These policies are desirable for those who not only wish to provide for their families, but also to make provision for themselves when the family is grown up, securing to themselves at the end of twenty years a cash value, which may equal the total amount paid to the company during the twenty years.

SINGLE PREMIUM LIFE POLICIES

Are policies for the whole life, the premium on which may be settled by a single payment. Persons having funds which they are reasonably confident they shall not require in business operations, or to meet current expenses, and who have an aversion to incurring future pecuniary liabilities, however small, prefer this mode of discharging their obligations to the company.

There are some other plans or kinds of contract, such as the Tontine, etc., which have been adopted in some instances, but which have failed to become of general use, or have been thrown aside as impracticable.

The most important case of life insurance is that which covers for the benefit of a helpless family the life of the husband and father, its productive head.

The doctrine of probabilities was first developed by Pascal & Huygeus in regard to games of chance.

In 1671 Jan DeWitt, of Holland, applied this table of probabilities to life contingencies, so as to determine the value of life annuities and reversions, in order to aid the government to raise loans.

In 1698 the London "Mercers Widows' Fund" was started. This, as all earlier companies, was founded "rather on mutual benevolence than insurance."

If we take a thousand persons, starting in life together, or alive at a given age, nothing is more certain than that their natural deaths will occur in a series differing not very widely from that of any other thousand persons alive at the same age, under same circumstances.

The truth of this general law is shown by the tables of mortality used in the calculation of life insurance premiums, and in the valuation of policies.

These tables are the Carlisle, the English Life, and the Actuaries' Rate or Combined Experience tables. The first of these is so called from the town of Carlisle, and was prepared by Mr. Milne, an eminent mathematician, from observations of the mortality in that town during the latter part of the last century. These observations were applied to a promiscuous population of about eight thousand persons. The English Life table, the second above named, was prepared by Dr. Farr, from data furnished by the census of England, and the records of deaths in that country, and published in 1843. His observations extended over quite a number of years, and embraced the entire male population, taking city and country together. The Actuaries', or Combined Experience table, the last above named, was prepared by a committee of actuaries, from the combined experience of seventeen of the principal life insurance companies in England, and was deduced from the records of the deaths of insured lives. This table is thought to express more accurately than any other published table the mortality of selected lives thus far experienced by American companies; and that experience indicates a rate of mortality so much lower than that of the actuaries' rate as to make the assumption of that table entirely safe.

MORTALITY TABLE—ASSURED LIVES.

American Table of Mortality adopted by the State of New York as the standard for valuation of Policies.

Completed Age.	Number Surviving at each age.	Deaths in each year.	Completed Age.	Number Surviving at each age.	Deaths in each year.	Completed Age.	Number Surviving at each age.	Deaths in each year.
10	100,000	749	40	78,106	765	70	38,569	2,391
11	99,251	746	41	77,341	774	71	36,178	2,448
12	98,505	743	42	76,567	785	72	33,730	2,487
13	97,752	740	43	75,782	797	73	31,243	2,505
14	97,022	737	44	74,985	812	74	28,738	2,501
15	96,285	735	45	74,173	828	75	26,237	2,476
16	95,550	732	46	73,345	848	76	23,761	2,431
17	94,818	729	47	72,497	870	77	21,330	2,369
18	94,089	727	48	71,627	896	78	18,961	2,291
19	93,362	725	49	70,731	927	79	16,670	2,196
20	92,637	723	50	69,804	962	80	14,474	2,091
21	91,914	722	51	68,842	1,001	81	12,383	1,964
22	91,192	721	52	67,841	1,044	82	10,419	1,816
23	90,471	720	53	66,797	1,091	83	8,603	1,648
24	89,751	719	54	65,706	1,143	84	6,955	1,470
25	89,032	718	55	64,563	1,199	85	5,485	1,292
26	88,314	718	56	63,364	1,260	86	4,193	1,114
27	87,596	718	57	62,104	1,325	87	3,079	933
28	86,878	718	58	60,779	1,394	88	2,146	744
29	86,160	719	59	59,385	1,468	89	1,402	555
30	85,441	720	60	57,917	1,546	90	847	385
31	84,721	721	61	56,371	1,628	91	462	246
32	84,000	723	62	54,743	1,713	92	216	137
33	83,277	726	63	53,030	1,800	93	79	58
34	82,551	729	64	51,230	1,889	94	21	18
35	81,822	732	65	49,341	1,980	95	3	3
36	81,090	737	66	47,361	2,070	..	..	..
37	80,353	742	67	45,291	2,158	..	..	..
38	79,611	749	68	43,133	2,243	..	..	..
39	78,862	756	69	40,890	2,321	..	..	..

Long and careful observations have shown that though the life of any given individual is proverbially uncertain, yet that, if a large number of persons in ordinary circumstances at a given age be taken, there is a law, fixed and uniform, determining within very narrow limits the average number of years of life remaining to them. For example, if we take 10,000 persons at the age of 22 years, the sum of their ages at death will amount to about 629,000 years, showing that on an average each person now 22 years old will live very nearly 41 years longer. This mean after lifetime is called *expectation* of life at the assured age, that is, the number of years which one at that age may *probably expect* to live, though many will die sooner, and even 72 out of 10,000 during the first year.

EXPECTATION OF LIFE.

Constructed from the Mortality Table.

Years old.	Expectation. Years.	Years old.	Expectation. Years.	Years old.	Expectation. Years.
10	48.7	40	28.2	70	8.5
11	48.1	41	27.5	71	8.0
12	47.4	42	26.7	72	7.6
13	46.8	43	26.0	73	7.1
14	46.2	44	25.3	74	6.7
15	45.5	45	24.5	75	6.3
16	44.9	46	23.8	76	5.9
17	44.2	47	23.1	77	5.5
18	43.5	48	22.4	78	5 1
19	42.9	49	21.6	79	4.8
20	42.2	50	20.9	80	4.4
21	41.5	51	20.2	81	4.1
22	40.9	52	19.5	82	3 7
23	40.2	53	18.8	83	3.4
24	39.5	54	18.1	84	3.1
25	38.8	55	17 4	85	2.8
26	38.1	56	16.7	86	2.5
27	37 4	57	16.1	87	2.2
28	36.7	58	15.4	88	1 9
29	36.0	59	14.7	89	1.7
30	35.3	60	14.1	90	1.4
31	34.6	61	13.5	91	1.2
32	33.9	62	12.9	92	1.0
33	33.2	63	12 3	93	.8
34	32.5	64	11.7	94	.6
35	31.8	65	11.1	95	.5
36	31.1	66	10.5	.	..
37	30.4	67	10.0	..	...
38	29.6	68	9 5	..	...
39	28.9	69	9.	..	...

The essential securities for the stability of a company are honesty and efficiency of management, and the *average rate of premium.*

This rate is calculated on the probability of life, and the probable expenses of the company.

This scale or table of the probability or expectation of life has been formed, and is supposed to be best adapted to the insurance of the lives of persons of good constitution, in good health, residing in healthy localities. Hence companies differ very slightly in their rates of premium.

The following are about the usual rates:

PREMIUMS PAYABLE IN ADVANCE, ANNUALLY.

ON ONE THOUSAND DOLLARS.

Age.	LIFE—PAYABLE AT DEATH ONLY.					
	Annual.	5 Pay'ts.	10 Pay'ts.	15 Pay'ts.	20 Pay'ts.	1 Pay't.
41	32.60	94.60	60 70	47.45	40.10	409.46
42	33 90	96.95	62.25	48.75	41.25	419.14
43	35.20	99.35	63.85	50.10	42.50	429.15
44	36.50	101.80	65.60	51.55	43.85	439.44
45	38.00	104.35	67.35	53.05	45.20	450.00
46	39.60	107.00	69.20	54.60	46.65	460.80
47	41.20	109.75	71.10	56.25	48.20	471.82
48	43.10	112.50	73.05	57.95	49.85	483.02
49	45.00	115.35	75.10	59.75	51.55	494.42
50	47.00	118.30	77.20	61.60	53 35	506.01
51	49.20	121.30	79.40	63.55	55.25	517.76
52	51.50	124.35	81.65	65.60	57.25	529.68
53	53.90	127.50	84.00	67.75	59.40	541.75
54	56.50	130.70	86.40	70 00	61.65	553.95
55	59.40	134.00	88.95	72.40	64.05	566.28
56	62.40	137.35	91.60	74.95	66.60	578.72
57	65.60	140.75	94.35	77.60	69.30	591.26
58	69.00	144.30	97.20	80 40	72.20	603.90
59	72 70	147.90	100.20	83.40	75.30	616.62
60	76.40	151.60	103.35	86.55	78.65	629.41

TABLE OF PREMIUMS PAYABLE IN ADVANCE, ANNUALLY.

ON ONE THOUSAND DOLLARS.

N. B.—The lower figures in the Endowment Tables are the Annual Premiums. The upper ones are the Ten Payment rates for the same terms.

Age.	LIFE—PAYABLE AT DEATH ONLY.						ENDOWMENT—PAYABLE AT DEATH, OR AFTER.							ENDOWMENT—PAYABLE AT DEATH, OR AGE.							Age.
	Annual	5 P'ts	10 P's	15 P's	20 P's	1 P't.	10 Yrs.	15 Yrs.	20 Yrs.	25 Yrs.	30 Yrs.	35 Yrs.	40 Yrs.	40	45	50	55	60	65	70	
20	17.30	60.70	38 55	29.75	24 70	264.50	104.85	88.10 65.35	74.95 46.20	64.70 35.25	56.70 28.35	50.65 23.85	46.15 20.80	74.95 46.20	64.79 35.25	56.70 28.35	50.65 23.85	46.15 20.80	42.95 18.80	40.85 17.55	20
21	17.80	61.85	39 25	30.30	25.20	269.39	104.90	88.20 65.40	75.05 46.30	64.80 35.35	56.90 28.50	50.90 24.00	46.50 21.00	77.45 49.25	66.70 37.15	58.30 29.60	51.95 24.75	47.30 21.50	43.90 19.35	41.70 18.05	21
22	18.30	63.00	40.00	30.90	25.70	274.45	104.95	88.25 65.50	75 15 46.40	64.95 35.45	57.10 28.60	51.20 24.15	46.85 21.20	80.00 52.70	68.75 39.20	60.00 31.00	53.35 25.70	48.40 22.25	44.90 19.95	42.55 18.55	22
23	18.70	64.25	40.80	31.50	26.20	279.68	105 05	88.35 65.60	75.30 46.50	65.10 35.60	57 35 28.75	51.50 24.35	47.25 21.45	82.70 56.50	70.90 41.50	61.75 32.50	54.75 26.75	49.60 23.05	45.95 20.60	43.45 19.05	23
24	19.30	65.50	41.60	32.15	26.75	285.08	105.10	88.45 65.70	75.40 46.60	65.30 35.70	57.55 28.95	51.80 24.55	47.65 21.70	85.55 60.85	73.15 43.95	63.55 34.10	56.25 27.90	50.85 23.85	46.95 21.25	44.40 19 65	24
25	19.80	66.80	42.45	32.80	27.30	290.66	105.20	88 55 65.80	75.55 46.75	65.45 35.85	57.80 29.10	52.10 24.75	48.05 22.00	88.55 65.80	75.55 46.75	65.45 35 85	57.80 29.10	52.10 24.75	48.05 22.00	45.35 20.25	25
26	20.30	68.15	43.30	33.50	27.90	296.43	105 30	88.65 65.90	75.70 46.85	65.65 36.00	58.10 29.30	52.50 25.00	48.55 22.25	91.70 71.45	78.05 49.80	67.50 37.75	59.45 30.40	53.45 25.70	49.20 22.75	46.35 20.85	26
27	20.90	69.55	44.20	34.20	28.50	302 39	105.35	88.75 66 00	75.85 47.00	65.90 36.15	58.40 29.50	52.90 25.30	49.05 22.60	94.90 77.95	80.65 53.20	69.55 39.85	61.10 31.80	54.85 26.75	50.40 23.50	47.45 21.55	27
28	21.50	71.00	45.15	34.90	29.15	308.55	105.45	88.90 66.10	76.00 47.15	66.10 36.35	58.70 29.75	53.30 25.55	49.60 22.95	98.30 85.65	83.35 57.10	71.70 42.15	62.85 33.35	56.30 27.85	51.65 24.25	48.55 22.25	28
29	22.10	72.45	46.10	35.65	29.80	314.91	105.55	89.00 66.20	76.15 47.30	66.35 36.55	59.60 30 00	53.75 25.85	50.20 23.30	101.90 81.70	86.20 61.45	74.00 44.65	64.70 35.00	57.80 29.00	52.90 25.25	49.65 22.95	29
30	22.70	74.00	47.10	36.45	30.45	321.48	105.65	89.15 66.35	76.35 47.45	66.65 36.75	59.40 30.25	54.25 26.20	50.80 23 75	105.65 105.65	89.15 66.35	76.35 47.45	66.65 36.75	59.40 30.25	54.25 26.20	50.80 23.75	30
31	23.40	75.60	48.10	37.25	31.10	328.25	105.80	89.30 66.50	76.55 47.60	66.90 37.00	59.80 30.55	54.80 26.60	.....	.....	92.30 72.05	78.85 50.50	68.60 38.70	61.05 31.60	55.65 27.20	52.05 24.55	31
32	24.10	77.20	49.20	38.10	31.85	335.25	105.90	89.45 66.65	76.75 47 80	67.20 37.25	60 20 30.90	55.35 27 00	.....	.....	95.55 78.55	81.45 53.95	70.70 40.80	62.75 33 05	57.05 28.30	53.30 25.45	32
33	24.80	78.85	50.30	39.00	32.60	342.48	106.05	89.60 66 80	77 00 48.00	67.55 37.50	60.70 31.25	55.95 27.45	.....	.....	98.95 86.25	84.15 57.80	72.90 43.10	64.50 34.60	58.55 29.50	54.60 25.40	33
34	25.60	80.60	51.40	39.90	33.40	349.93	106.15	89 80 66.95	77.25 48.25	67.90 37.80	61 20 31.60	56.65 27.90	.....	.....	102.50 95.35	87.00 62.20	75.15 45.70	66.35 36.30	60.10 30.70	55.95 27.35	34
35	26.50	82.40	52.60	40.85	34.25	357.63	106.30	89.95 67 15	77.55 48.50	68.30 38.15	61.75 32.05	57.35 28.45	.....	.....	106.30 106.30	89.95 67.15	77.55 48.50	68.30 38.15	61.75 32.05	57.35 28.45	35
36	27.40	84.30	53.80	41.80	35 10	365.58	106.45	90.15 67 35	77.80 48.80	68.75 38.50	62.35 32.50	.....	.....	.....	.....	93.10 72.85	80.00 51.60	70.30 40.15	63.40 33.50	58.80 29.55	36
37	28.30	86.20	55.10	42.85	36.00	373.79	106.60	90.40 67.60	78.15 49.10	69.20 38.90	63.00 33.00	.....	.....	.....	.....	96.35 79.40	82.60 55.10	72.45 42.35	65.20 35.00	60.35 30.75	37
38	29.30	88.20	56.40	43.90	36.95	382 27	106.80	90.65 67.85	78.50 49.45	69.70 39.40	63.70 33.60	.....	.....	.....	.....	99.75 87.10	85.35 59.00	74.65 44.70	67.00 36.65	61.90 32.05	38
39	30.40	90.25	57.75	45.00	37.95	391.03	107 00	90.90 68.15	78.90 49.85	70.30 39.90	64.45 34.20	.....	.....	.....	.....	103.40 96.25	88.20 63.45	76.90 47.35	68.90 38.50	63.55 33.40	39
40	31.50	92.40	59.20	46.20	39.00	400.09	107.20	91.25 68.45	79.35 50.25	70.95 40.45	65.30 34.90	.....	.....	.....	.....	107.20 107.20	91.25 68.45	79.35 50.25	70.95 40.45	65.30 34.90	40

PREMIUMS PAYABLE IN ADVANCE, ANNUALLY

ON ONE THOUSAND DOLLARS.

N. B.—The lower figures in the Endowment Tables are the Annual Premiums. The upper ones are the Ten Payment rates for the same terms.

Age.	ENDOWMENT.							
	PAYABLE AT DEATH, OR AFTER.				PAYABLE AT DEATH, OR AGE.			
	10 Yrs.	15 Yrs.	20 Yrs.	25 Yrs.	55	60	65	70
41	107.45	91.60 68.85	79.90 50.75	71.65 41.05	94.40 74.25	81.90 53.50	73.05 42.55	67.15 36.45
42	107.80	92.00 69.25	80.45 51.30	72.45 41.75	97.75 80.90	84.60 57.10	75.25 44.90	69.00 38.20
43	108.15	92.45 69.75	81.10 51.90	73.30 42.50	101.30 88.70	87.45 61.15	77.60 47.45	71.00 40.10
44	108.55	93.00 70.30	81.85 52.60	74.25 43.35	105.05 97.90	90.45 65.70	80.05 50.30	73.10 42.10
45	109.00	93.60 70.85	82.60 53.35	75.30 44.30	109.00 109.00	93.60 70.85	82.60 53.35	75.30 44.30
46	109.50	94.25 71.50	83.50 54.20	.....	.....	96.90 76.80	85.35 56.75	77.60 46.65
47	110.05	94.95 72.25	84.45 55.10	.....	.....	100.40 83.60	88.15 60.55	80.00 49.20
48	110.65	95.75 73.05	85.45 56.05	.....	.....	104.10 91.50	91.15 64.75	82.50 52.00
49	111.35	96.60 73.90	86.60 57.15	.....	.....	108.00 100.90	94.20 69.50	85.10 55.00
50	112.05	97.50 74.80	87.80 58.35	.....	.....	112.05 112.05	97 50 74.80	87.80 58.35
51	112.85	98.50 75.85	.....	.....	.....	.....	100.95 80.90	90.60 61.95
52	113.70	99.60 76.95	.....	.....	.....	.....	104.55 87.90	93.60 66.00
53	114.65	100.80 78.20	.....	.....	.....	.....	108 40 95.95	96.70 70.45
54	115.70	102.05 79.55	.....	.....	.....	.....	112.50 105.50	100.00 75.45
55	116.80	103.50 81.00	.....	.....	.....	.....	116.80 116.80	103.50 81.00
56	118.05	.....	.....	.....	.....	.....	.....	107.10 87.35
57	119.40	.....	.....	.....	.....	.....	.....	111.00 94.55
58	120.90	.....	.....	.....	.....	.....	.....	115.15 102.90
59	122.50	.....	.....	.....	.....	.....	.....	119.60 112.70
60	124.30	.....	.....	.....	.....	.....	.....	124.30 124.30

In order to make sure that the applicant is a person of good constitution, in good health and without bad habits or tendency to inherited or family disease, and so likely to fulfill his tabular life expectation, application blanks are furnished and the applicant answers questions as to age, profession, general state of health, age of brothers and sisters, and parents, if living, if dead, age at death and disease causing death as well as ages attained by grandparents. In addition to these he must set forth for whose benefit the insurance is taken *and what is the interest of such person in the life to be assured.*

The last is an important question, as it underlies the principle that separates life insurance from gambling.

APPLICATION FOR LIFE INSURANCE.

APPLICATION TO

THE BENEFIT LIFE INSURANCE COMPANY.

QUESTIONS TO BE ASKED BY THE AGENT.

1. Are you married?
2. What is your occupation? (Give kind of business and position held.)
3. Are you in good health?
4. For whose benefit is the proposed insurance? How related to you?
5. What is the total insurance now on your life?
6. In what companies and for what amounts?
7. Have you any application for insurance now pending? In what Cos.?
8. Have you ever applied to any agent, or sought insurance in any company, which either postponed or refused to issue a policy? State companies and cause.
9. Do you use spirits, wine or malt liquors daily, or occasionally, and to what extent?
10. Are you engaged in or connected with the manufacture or sale of malt or spirituous liquors?

QUESTIONS TO BE ASKED BY MEDICAL EXAMINER.

NOTE.—As it is of vital importance that the *personal* and *family* record be clearly stated, and few persons not physicians recognize the difference between *diseases* and *symptoms*, the Examiner will ask the following questions and see that the answers are free from ambiguity. (The terms "childbirth," "debility," "old age," "exhaustion," "exposure," "result of accident," "worn out," "over work," "dropsy," "fever," and especially "don't know," will not be accepted by the company without explanation.)

11. Have you any disease or disorder? If so, what?
12. For what have you sought medical advice during the past seven years? Dates? Duration? Physicians consulted?
13. Have you had any personal injury or accident? What? When? Result?
14. Have you had rheumatism? Number of attacks? Dates? Duration? Severity?
15. Are you or have you been subject to dyspepsia? Dates? Duration? Severity?
16. Have you ever had any of the following diseases? *Answer each question explicitly, and give particulars under head of Remarks.* [Here follows a list of about forty diseases.]

Remarks.

17. FAMILY RECORD.

LIVING.

	Ages.	Condition of Health.
Father living		
Mother living		
Number.		
How many brothers living		
How many sisters living		
Father's father living		
" mother "		
Mother's father living		
" mother "		

DEAD.

	Ages.	Disease which caused death.	Duration.	Previous Health.
Father dead				
Mother dead				
Number.				
How many brothers dead				
How many sisters dead				
Father's father dead				
" mother "				
Mother's father "				
" mother "				

18. Have any two members of the family, grandparents included, had consumption? Cancer? Paralysis or apoplexy? Disease of Heart? Disease of Kidneys?

Dated this.....day of.....A. D. 18 ...

In presence of.....Examiner.

Party to be examined sign here.....

(Writing name in full.)

DECLARATION.

Being desirous of effecting an assurance of $.....on the.....plan, premiums payable.....with the *BENEFIT LIFE INSURANCE COMPANY*, on the life of.....born at.....State of .....on the.....day of .. ....18..., at present and for..... years resident of.....county of.....State of.....

I agree that the foregoing answers to the questions of the agent and examiner shall be the basis of my contract with the company, and warrant them to be true, and agree that any untrue or fraudulent answer or the indulgence by the insured in any habit which tends to shorten life shall render the policy void.

Dated at.....this.....day of.....A. D, 18 ...

Witness.....*Signature.....

*NOTE—Declaration should be signed by wife, if wife's policy is desired. The husband may sign her name as her attorney.

As in fire insurance so in life, there must be an interest that is insurable.

The medical examiner next takes the applicant and gives him a personal examination, particularly directed to tracing the presence of hereditary or organic disease, or any tendency thereto, and as to the applicant's personal habits.

The applicant signs this blank as his warranty. The physician then makes out still another blank to which he certifies, and the application and papers go to the company's office, where the medical examiner-in-chief gives them a careful examination to guard against any collusion on the part of agent, local physician and applicant ere the policy is issued.

FORM OF POLICY.

NOT ASSIGNABLE.

THE BENEFIT LIFE INSURANCE COMPANY.

Incorporated by the State of.....

No..... .....Annual Premium, $..... $.....

This Policy Witnesseth, That the **Benefit Life Insurance Company,** in consideration of the statements and agreements in the application for this Policy, and in the declaration subjoined thereto, which are hereby made a part of this contract, and of the sum of.....dollars and....cents, to them in hand paid by the Assured, Mrs....., **Wife** of the Insured, ...and of the.....Annual Premium of. .. . .dollars and.....cents, to be paid at or before twelve o'clock, M., on the . ...day of.....In every year during the continuance of this Policy, **Do Insure** the Life of. ..... of. ,.....in the County of.....State of.....in the amount of..... dollars, for the term of Life.

And the said Company do hereby Promise and Agree, to and with the said Assured, well and truly to pay, or cause to be paid, the said sum insured, at their office, in the City of..... . , to the said Assured, within sixty days after due notice and satisfactory proof of the death of the said Insured. And in case the said Assured shall die before the decease of the said Insured, then the amount of this insurance shall be payable to the children born of their marriage, or to their guardian if under age; or if there are no such children or their descendants living, then payable to the executors, administrators or assigns of the Insured, within sixty days after due notice and satisfactory proof of interest and of the death of the said Insured, deducting therefrom all indebtedness of the party to the Company, together with the balance, if any, of the then current year's premium.

This Policy is issued and is accepted by the Assured upon the following conditions—namely:

That the Insured will reside in those parts of the United States only that lie at least one hundred miles from the Gulf of Mexico, or in the Dominion of Canada, or in Europe or in Japan, and not elsewhere without written permission of the Company first obtained.

That for three years from the date hereof the Insured shall be restricted in traveling to points within and to voyages between the above limits, after that period journeys for business or pleasure may be made without restriction.

That he will not at any time within three years from the date hereof be personally engaged in any blasting, mining or submarine operation, or in the production of any highly inflammable or explosive substance, or in working or managing a steam engine or boiler, or be employed in any manner on a railway train or on a steam or sailing vessel.

That he will not engage in any military or naval service, unless it be in the militia in time of peace.

That any violation of either of the above conditions without the written permission of the Company previously obtained, shall render this Policy void.

That the statements contained in the said application and declaration and every of them are true, and if any of them shall be found untrue, then this Policy shall be null and void; but that after three years from the date hereof, this Policy shall not be thereby rendered void, unless such erroneous statement or statements shall be shown to be material and to have been made with intent to deceive or defraud the Company. Any error made in understanding the age of the Insured, will be adjusted by paying such amount as the Premiums paid would purchase at the table rate.

That if the death of the Insured shall result from the intemperate use of stimulants or narcotics, or if he shall die by his own hand or in consequence of a violation of any law or by the hands of justice, this Policy shall be void. If, however, it shall be shown that the Insured at the time of taking his life was insane, the Company will pay the sum insured, or refund the Premiums actually received, with interest thereon, according to its judgment of the equities of the case. This option is distinctly reserved by the Company and is made a part of this contract.

That in case the said Premiums (the party whose life is insured being living) shall not be paid on or before the several days hereinbefore mentioned for the payment thereof, at the office of the Company in the City of....., or to Agents when they produce receipts signed by the President or Treasurer, then, and in every such case, the said Policy shall cease and determine; but when after two full annual Premiums shall have been paid on this Policy it shall cease or become void solely by the non-payment of any Premium when due, its entire net reserve by the American Experience Mortality and interest at four per cent yearly, less any indebtedness to the Company on this Policy, shall be applied by the Company as a Single Premium at the Company's rates published and in force at this date, either, *first*, to the purchase of non-participating term insurance for the full amount insured by this Policy, or, *second*, upon the written application by the owner of this Policy and the surrender thereof to the Company at ....., within three months from such non-payment of Premium, to the purchase of a non-participating Paid-up Policy payable at the time this Policy would be payable if continued in force. Both kinds of insurance aforesaid will be subject to the same conditions, except as to payment of Premiums, as those of this Policy. No part, however, of such term insurance shall be due or payable unless satisfactory proofs of death be furnished to the Company within one year after death; and if death shall occur within three years after such non-payment of Premium, and during such term of insurance, there shall be deducted from the amount payable the sum of all the Premiums that would have become due on this Policy if it had continued in force.

THIS POLICY does not take effect until the Premium shall have been actually paid; nor are Agents authorized to make, alter, or discharge this or any other contract in relation to the matter of this insurance, or to waive any forfeiture hereof, or to grant permits, or to receive for the cash due for Premiums anything but cash.

In Witness Whereof, the said **Benefit Life Insurance Company** have by their President and Secretary, signed and delivered this Contract, at the City of....., in the State of....., this.....day of.....one thousand eight hundred and.....

..... *Secretary.* .....*President.*

C

LIFE INSURANCE FRAUDS.

Yet, despite all this care, frauds upon life insurance companies are not at all uncommon.

In a case not long since the local examining physician certified that the applicant was of a ruddy complexion, free from any tendency to heart or lung disease, etc., when in fact the very same physician expected him to die in a few hours, as he did, and the dying man was propped up and held up in bed in order to sign his name.

In another case known to the writer, the general agent had partly written his check to pay a death loss, and was saying to a friend, "That is the way the —— company pays its losses," when his eye caught a similarity of writing in the application for insurance and the proof of death. Tearing up his half-drawn check, he put on overcoat and hat and started for the railroad. In less than sixty hours thereafter General —— had resurrected his dead man, whom he found at table enjoying a hearty meal and displaying good appetite for a man whose body was supposed to be resting on the bottom of —— river.

The following statistics show something of the extent and magnitude of the business of life insurance in the United States on January 1, 1882, and relate to

the business of fifty-three companies from their organization to January 1, 1882.

Amount of premiums to date - -	$1,154,739,618.55
Am't paid death losses, endowments	823,897,319.37
Assets of 53 companies at date - -	468,541,788.93
Paid by policy holders in 1881 -	60,444,996.00
Paid to policy holders, death claims, endowments and purchased policies	58,388,283.00
Number of families in U. S. (census of 1880) - - - - - - -	9,945,916
Number of policy holders in United States - - - - - - - -	732,704
Average of policies to families - -	1 in 13½
Amount of insurance in force -	$1,649,484,953.66

In these figures prudential and co-operative institutions or societies are not included.

ACCIDENT INSURANCE.

Accident Insurance Policies are contracts insuring for "death only," covering fatal accidents; for "indemnity only," insuring against non-fatal accidents which are *totally* disabling; or for "death and indemnity," covering both fatal and non-fatal accidents.

Any sums paid as indemnity will, in case of loss by death during the same year, be deducted from the amount insured. Weekly indemnity is paid only for twenty-six weeks from date of accident.

Accident companies insure against all bodily injuries caused by purely accidental means but not against disease in any form, nor from accidents caused by war, riot, fighting, wrestling, racing, drunkenness, breach of the law or any unnecessary or unlawful exposure.

Risks are classified into six divisions, according to occupation of the insured, the premiums for both "death and indemnity" ranging from $5 per $1,000 per annum to $20 per $1,000.

Passengers' tickets are also sold at nearly all railroad ticket offices. This ticket is, to all legal intents, a policy of accident assurance for indemnity in case of non-fatal accident during the journey *from the perils of* traveling, or for the whole amount insured in case of death from accidental cause, subject to certain conditions printed upon the back of the ticket.

A three thousand dollar ticket costs 25 cents for a three day's trip.

During the year 1882, the accident premiums received by the companies doing business in Massachusetts were reported at about $2,000,000.

Appended hereto we give the form of a traveler's accident ticket:

FORM OF ACCIDENT TICKET.

Regist'd No.....

Year.	1876	'77	'78	'79	'80	'81	'82	'83	'84	'85	'86	'87
Month	Jan.	Feb.	Mar.	Ap.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec

No. of Agency. .....

The Travelers Insurance Company — Form A

OF HARTFORD, CONN.

THIS TICKET INSURES

.....

of .....

by occupation .....

in the sum of $3,000.00, for the term fixed by the Coupons remaining hereto attached, beginning with the day and hour as hereon canceled, and is subject to all the provisions of the contract on back hereof.

NOT TRANSFERABLE. RODNEY DENNIS, Sec'y.

Premium $.....

COUPON No. 1. Premium 25 Cents per day. Full Ticket, 30 days, $4.50.

1

Day of Month: — 1 | 2 — 3 | — 4 — 5 | 6 — 7 | — 8 — 9 | 10 — 11 | — 12 — 13 | 14 — 15 | — 16 — 17 | 18 — 19 | 20 — 21 | 22 — 23 | 24 — 25 | 26 — 27 | 28 — 29 | 30 — 31

Hour: P.M. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | *Night*
A.M. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | *Noon*

The transfer of such ticket would forfeit all claims arising thereunder.

Beneficiary or Co-Operative Associations.

This class of associations have multiplied until they are numbered by the hundreds. They claim to give insurance at cost, while professing not to be insurance companies.

This is done to escape state supervision and state reports.

It is difficult to treat of them as they deserve, because they *deserve so differently*. Some are really deserving and furnish reliable indemnity.

Others were conceived in iniquity, born in fraud and lived their short lives in baseness that no words can properly describe. The term "graveyard insurance," has been fitly applied to these fraudulent schemes, and a few of the schemers have found their proper home, the penitentiary. Between these last and the best class are a long array of struggling associations destined to an inglorious life and speedy death, from which there will be no possible resurrection.

A life insurance company contracts to pay certain sums of money in consideration of certain stipulated premiums. A mutual aid or beneficiary association contracts to pay certain sums of money in consideration of certain stipulated assessment rates.

Hence the supreme courts of at least two states (Massachusetts and Ohio) hold the latter contract to be "one of insurance, although the declared object of the insurer is benevolent and not speculative, or, that the amount to be paid is not a gross sum but one graduated by the number of members."

In fact nearly all the really deserving of these associations have demanded state supervision, as the only means of self-preservation of the deserving societies.

The amount of business done by these societies is enormous, but hard to bring down to exact figures.

The seventy-three associations reporting to the Massachusetts Insurance Department, January 1, 1882, reported income from assessments, $5,991,388, and losses paid, $5,838,215.

It would be safe to estimate the amount paid by assessment during the year 1882 into these associations as at least $60,000,000, and that seems to be a very low estimate.

Some of these societies will undoubtedly live, and continue to flourish, despite the load of obloquy they have to carry from the numberless fraudulent concerns that strove to conceal the wolf beneath the sheep's skin, being, instead of co-operative, only deceptive.

Around many of these societies are thrown social, fraternal, and moral influences which are worthy of all honor and commendation.

Of the value of these influences there can be no question, they are beyond even cavil or shadow of reproach.

If the system on which they are based can stand the light of state supervision and the test of advancing age, it deserves indorsement and success.

Meanwhile the closest scrutiny and extremest caution is demanded by those who wish to make a sure protection for their widow and orphans, that the rod on which they lean "may not prove a broken reed and pierce the hand."

Guaranty or Fidelity Insurance.

The Guaranty Insurance Society was established in London for the purpose of granting policies against dishonesty of servants or employes in commercial or professional pursuits.

It depended for success upon the application of the law of average that seems to be a fundamental principle of the law of the universe, that in the occurrence of every class of events, great or small, a rule of proportion is strictly followed.

In 1850, the great banks of England and Ireland, two of the leading railways of the United Kingdom, and several of the large commercial firms of London and Liverpool, had discontinued the use of private bonds and made arrangements for using the policies of the Guaranty Society. Since that date this kind of insurance has largely increased in England, and four companies are issuing policies of guaranty in the United States, covering, in 1881, amounts of over two million dollars.

The policies of a guaranty company are based upon

the statements of reliable citizens who fill out their knowledge of the applicant for insurance in the following form:

FORM OF AN INQUIRY.

The Guaranty Company of the United States.

Devoted solely to the issuing of Bonds of Security in Positions of Trust.

Capital Subscribed, $1,000,000.

Paid up, $500,000. Assets, $500,000.

SIR:

An application for a bond of guaranty for fidelity having been made by the party named below, and he having referred the directors to you as his former employer for testimony as to his character and antecedents, I beg to hand you the subjoined list of questions, to which I shall feel obliged by *your early reply.*

As the great advantages contemplated by this system of corporate suretyship can only be realized by good faith on the part of referees in communicating freely with the company, I beg earnestly to solicit your candid answers, and to point out to you the advantages to accrue to all concerned, by your giving the company the benefit of your co-operation in this respect, the object of the directors in obtaining this information concerning the conduct and principles of those who apply to the company to become their sureties, being, at the same time as to protect employers from loss by the acts of unworthy employers, to assist them (the directors) in promoting the appointment of reliable officers to positions of trust in the country. Your replies hereto, will be held strictly private and confidential, and will in no way involve you in any pecuniary responsibility.

I am, Sir, your obedient servant,

SAMUEL L. MASON,
General Manager.

To.....

.....

Proposal No ..... Amount.....

Name, address and occupation of party requiring to be guarantied, and that of his employer. Mr.....of.....aged.....in the situation of.....at.....to.....

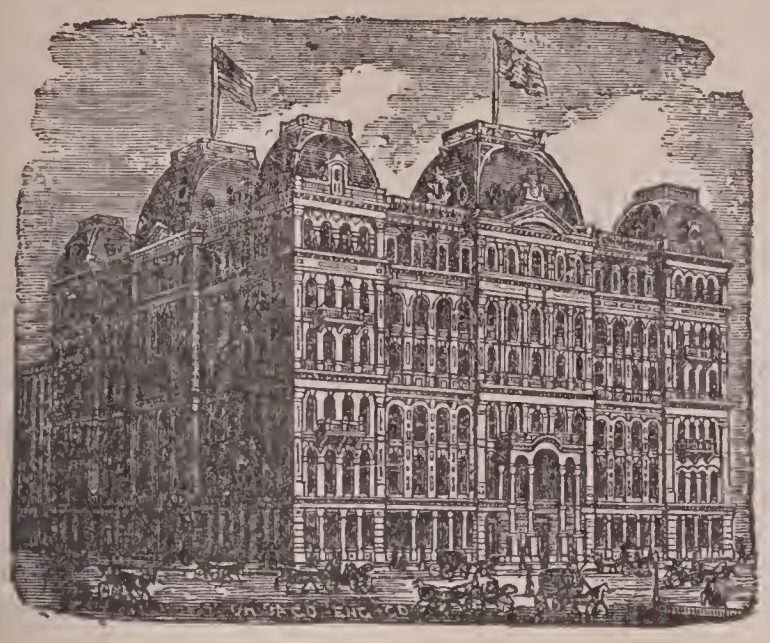
QUESTIONS.	ANSWERS.		
1. Is the above-named applicant for guaranty well known to you, and how long have you known him?	Length of time known? ... Yrs. ....Mo.	From 18....	To 18....
2. Are you connected by relationship, or otherwise, with him? If so, in what way?			
3. Are his habits sober and correct, and his general conduct such as to entitle him to the confidence of his employers?			
4. Has he, to your knowledge, been, or have you ever heard of his having been irregular or unsteady in his habits, or addicted to any bad habits?			
5. Can you give any information as to his family relations or intimate associates? If so, do any, to your knowledge, bear an unfavorable reputation?			
6. Have you any knowledge, or have you heard anything concerning his habits, associations, or actions generally, which would lead you to suppose that he is or has ever been engaged in any gambling, or speculating transactions, or that his style of living is in any way extravagant or incompatible with emoluments arising out of his employment?			
7. Is the applicant engaged in any business, employment, or undertaking besides that for which he proposes to be guarantied (as above) and whether in partnership or on his own account?			
8. Is he, or has he ever been, in embarrassed circumstances, bankrupt or insolvent?			
9. Have you any reason to suppose he is at present under any embarrassments, liabilities, debts or responsibilities whatever?			
10. Has he, to your knowledge, any private property or income, independent of his emoluments from the office for which he is to be guarantied as above? If so, please to state the nature and extent, as far as you know, and whether encumbered or not.			
11. In what capacity was he in your service, how long, and why did he leave? And did he give you entire satisfaction, or did he at any time give you cause for dissatisfaction or complaint?			
12. Have you any reason to consider him incompetent to fill the position which he proposes to undertake?			
13. Do you know or have you heard of any circumstances, however apparently trifling, connected with any of his former employments, or otherwise, that you deem it advisable for the company to be acquainted with, in order to guide the directors in estimating the risk to be incurred by becoming his security? If so, please state fully.			
14. Do his general principles and circumstances, to the best of your knowledge, render him, in your opinion, a safe and proper person to be guarantied by the company, and one you would yourself trust, or recommend for the position above stated?			

Signature of former employer.....

Address and occupation.....

Date.....day of.....18....

The advantage in having the character and fidelity of officers and employes of banks, railroads, and mercantile establishments thus regularly insured for a specified amount, instead of requiring bonds for faithful performance, as does the government of its officers, is found mainly in the fact that in case of a default by the employe insured, the amount of the policy is more easily collected than in the case of private citizens as bondsmen. Then, again, in the case of a claim against private citizens as bondsmen, there is oftentimes litigation and wrangling which is more or less mixed with personalities and results, in the majority of cases, in enmity between the various parties to the case. This, it is desirable to have avoided, by mercantile and financial concerns, as it must necessarily, to some extent, injure their business and prosperity.



Retail Business.

A SMALL capitalist should enter a business of which he has intimate knowledge. Unless such a person starts with proper precaution and judgment, his capital will be expended without adequate results; rent and taxes will accumulate, the stock will lie dead or become deteriorated, and loss and ruin must follow. For the least absorption acting upon a small capital will soon dry up its source; and we need not picture the trouble that will soon arise when the mainspring of a tradesman's success abides by him no more.

The larger capitalist can scarcely be considered an exception to the same rule; for it is probable that the larger capitalist, upon commencing a business, would sink more of his funds in a larger stock—would incur liability to a heavier rent; and the attendant taxes, the wages of assistants, would be greater, and, therefore, if the return came not speedily, similar consequences must sooner or later ensue.

Large or small capitalists should, therefore, upon entering on a business, consider well the nature of the locality in which they propose to carry on trade, the number of the population, the habits and wants of the people, and the extent to which they are already supplied with the goods which the new adventurer proposes to offer them. He should also consider his ability to cater to the wants and tastes of the people in order to attract the customers to trade with him in preference to those already established, and supplying the trade.

BUYING IN, AND GETTING STARTED.

Generally good connections are formed by buying out an old dealer of good reputation, and thus at once coming into the enjoyment of the advantages of an established business. This method of getting into business is often too dear, especially if the concern has anything like a monopoly of the trade. It may be less expense to get the customers out of old ruts, or to secure new customers, by new advertisements, new goods, new prices, and new rules of credit, than to buy out an established business at an exorbitant figure.

The retail merchant should carefully observe the taste of the community in which he is located. If the prevailing style is for gaudy or flashy colors, he should keep such goods in stock. If yellow or red are prevailing colors, he must learn to like these colors himself, and must be able to supply the demand for them. If the tastes of the community are plain, the style of the goods must correspond. The quality of goods must also be considered when laying in a stock; thus a wealthy and fashionable neighborhood would not patronize a store filled with cheap and shoddy goods, neither would a community of new settlers, or where the people are mainly poor, buy high-priced articles which are above their means.

The quantity of goods should depend upon the amount of capital, the probable sales, and the ability to readily stock anew during the season. Be careful not to overstock. The retail dealer should decide before going into the wholesale market, just what amount of capital he is to place in a stock of goods, and then not be influenced beyond this by the plausible representations of the wholesale salesman. He should

do more than this; he should make out a carefully prepared statement of the amount of capital which he desires to place in each department of his store. Thus in a grocery stock it may be something like this:

Teas and Coffees,	$000.00
Sugars,	000.00
Flour,	000.00
Canned Goods,	000.00
Syrups, Vinegars and Oils,	000.00
Spices,	00.
Soaps,	00.
	$0000.

After a complete list is made out, he should then take each of the above departments and itemize them; thus Teas and Coffees may be divided up into a dozen kinds and varieties, and a separate sheet of paper should be used whereon the number of pounds of each variety is placed opposite its name and the price and value extended. If it is found that the value of all the varieties of Teas and Coffees foot up a larger amount than the sum set apart for this department in the original statement, then some of the items must be reduced in quantity, and in deciding what articles may be stricken out or diminished, the wants of the community, the class of custom, must be considered.

After the merchant has thus, with great pains, perhaps, made a careful draft of the various departments of his store, and of the quantity and quality of the goods for each, he should then transcribe this to a pocket memorandum book, placing the names, quantities and prices of the articles on the left page, leaving the right or opposite page blank.

When in the wholesale market, this pocket memorandum book will be of the greatest advantage to the buyer, as his mind will be fully occupied in comparing prices and qualities of goods, making terms as to credit, and many other details without also undertaking to remember what articles to buy. Guess work in buying has been the rock upon which many a retail business has split and foundered. The alternate or blank page of the memorandum book will be found convenient for checking off the items as they are bought, noting any change in price, quality or quantity of the goods actually purchased, or comparing the prices of rival houses in the market. The mark used in checking off the items as they are bought should be the initial letters of the name of the house from whom the goods are bought.

BUYING GOODS ON CREDIT.

Some persons regard credit as the result of a sort of influence exerted over the mind of the creditor, by some fair scheme or story, either honest or dishonest. The fact is, however, that credit is a product of business success. It is accumulated capital, from a business which has been well conducted, the same as Real Estate is accumulated capital. The surest and quickest way a retailer can obtain credit is not to ask it. If he shows that he is able to conduct his business without credit, he will soon find that the wholesale merchant is very anxious to sell to him on credit. In fact, he will be offered more goods on credit than he can possibly handle or sell. But while it is desirable to keep entirely out of debt at the beginning, this may not always be practicable; and it may be necessary to run a small credit with the wholesaler at first. In establishing a credit, there are several methods. The retailer may arm himself with one or more letters of introduction, bearing pointedly on his business ability, character and financial status, from persons in good standing who are well known to the wholesale merchant. A line from the banker in the town would also have much weight.

The Style of a Letter.

RICHMOND, PA., Sept. 18, 18—.

H. B. CLAFLIN & CO.,
New York.

Gentlemen: This will introduce to you the bearer, Mr. Henry Otis of this place, who goes into the wholesale market for the purpose of buying goods.

Mr. Otis is a perfectly reliable young man; cautious, prudent, enterprising and honest; and withal he possesses an excellent knowledge of the Dry Goods business.

In extending a credit to Mr. Otis for any reasonable amount, we are confident that he will meet all his engagements promptly

Respectfully,
CHAS. COTTONADE & CO.

Or, the retailer may obtain a personal introduction by a dealer with whom he is acquainted, and who happens to be in the market at the same time. Care should always be exercised, and no introductions should be asked or accepted from a merchant who is not in excellent standing, as this would cloud and impair the credit of the person who is introduced, at once. It is not well to seek an introduction through a rival merchant, or one who is to be a competitor, as by so doing, the person introduced places himself under obligations, and to a certain extent under the power of his rival. The wholesale merchant is most likely to occasionally consult the introducer concerning the success and standing of the person introduced, and he may by innuendoes, and the use of "ifs" or "buts," easily lead the dispenser of credit to infer that the person is not safe, while the person introduced supposes he has been greatly obliged by his friend, who so kindly introduced him, when in fact he is being injured by him. Accept an introduction from no one in whom you have not

implicit confidence. He who is now your friend may become your enemy through rivalry, jealousy or many other causes, and the wholesale dealer, supposing always that the friendly relations which existed between you at first, still exist, naturally asks your rival and enemy concerning your financial standing. This places you in his power, and with your credit ruined at the wholesale market you may be eventually ruined at home.

The retail merchant asking credit, should have no objections to giving a full, frank and honest statement to the wholesaler concerning the amount of his capital, his former career, and the circumstances which tend to show his industrial habits, his prudence and economy. To deny the merchant this information to which he is entitled, is to create doubts in his mind, and to give any false or strained statement of your affairs, is to eventually ruin your credit, besides laying yourself liable for a criminal prosecution for "obtaining goods under false pretenses." Having established a credit at one of the wholesale houses, it is an easy matter to extend this to the others, as you can "refer to —— & Co., who have sold me goods."

A RETAIL STREET.

RECEIVING AND MARKING GOODS.

As the goods are received in store, the retail merchant should first inspect the cases to see if they have been tampered with, or opened during their transit from the wholesale house. It occasionally happens that articles are abstracted from a box or package by an employe of the railroad or transportation company or by some irresponsible person, who obtains access to the goods in their passage over their route. The disordered or confused arrangement of the box upon its being opened, will usually indicate to the merchant whether anything of this kind has occurred, and if it has, he should immediately notify the transportation company.

As the goods are removed from the boxes they should be carefully examined. If any of the articles are in pairs, such as boots and shoes, it should be seen that they are properly mated, or fastened together. Each article is checked off with the invoice and the quality and price compared. If any articles are found to be short in weight or number, a memorandum of such should be made at once, and if any are stained or damaged they must be set aside. All notices of shortage in goods or claims for damage, should be made at once, and the merchant should not wait until the settlement of his bill, which may be three or four months hence.

After the goods are unpacked, they must be appropriately and tastefully arranged in their various departments throughout the store. This is a matter which can only be treated in general terms, as the peculiarities of the business, the location of the store room, its size, its light, etc., will govern the arrangement of the stock. But under any circumstances, it may be laid down as a rule that each department should be allotted a certain space, and all articles should at all times be kept in their proper place, so that the proprietor or his clerks could go directly to the article even in the dark. Goods which are most in demand, and most frequently called for, should be arranged in the most convenient and prominent part of the store, and articles which are usually sold in connection with others should be placed near them. Some goods must be kept in the upper part of the store, others in the cellar. Some articles are injured by exposure to moisture, while others require a damp place; some must be kept cool, others warm. Light and exposure exhibit defects in certain classes of goods, and in other classes are essential to

their sale. A variety of details, and much experience must enter into the problem of arranging the stock of goods on the shelves of the retail dealer.

The arrangement of samples, use of placards, and price tickets also call for ingenuity, taste and method. Marking goods, and the various devices resorted to by the merchant to record the cost and selling price of his wares has been fully treated in another part of this book, to which the reader is referred; but it may here be said that the "key word" and other contrivances, form the very least important part of the marking of a stock of goods. The cost price of an article is not what it may have cost in the wholesale house, but this amount with freight, drayage, and all the charges added, and in reckoning the profit and selling price, these must be carefully looked after, and allowed for, or the profits at the end of the year will not be forthcoming. The freight cannot be allowed on articles of merchandise indiscriminately, or at a given rate per cent. For instance, the freight may, on an entire stock of goods, average five per cent, but it would not do to add five per cent to the first cost of all articles, for a small box of cutlery would then pay more freight than a barrel of flour, and the merchant would find that his flour was being sold readily, while no one bought cutlery, and in the end the merchant would be the loser.

Profits should also depend upon the nature of the articles themselves. Thus perishable goods; those which are salable only during a limited season; those which are liable to go "out of style" and be left on the merchant's hands, must all be sold at a higher profit than staple articles, in order to compensate the merchant for his risk and trouble.

Young merchants upon just commencing are liable to undertake to attract custom by selling certain goods, concerning the price of which the public is usually pretty well informed, at a ruinously low figure, trusting to make up for the loss on this by a larger profit on some other class of goods. But in many cases the customers are just shrewd enough to buy the low priced articles of the new comer, and the other articles of the old established dealer, thus leaving the young merchant a loss without a corresponding profit.

EMPLOYES.

An employer who is a judge of character, may tell an honest employe from a rascal by his general bearing. In each person there is an expression in a general way of what he is. This may be seen in every natural posture of the body, in every gesture, in the tone of voice. The posture of an honest man will not usually appear in any degree strained. The habit of gesture will be in a line with the impulse, if not the the idea, of integrity. An applicant or employe who makes a gratuitous display of his religious convictions and his honor, is a hypocrite, and will steal when he gets an opportunity.

Having secured an intelligent and faithful clerk, it should be the aim of the merchant to retain him in employ for a long period of service. In this way employer and clerk come to know each other better; the clerk sees his own interests to be identical with those of his employer, while employer finds that he is receiving good service, and appreciates it. The habit of employing clerks and keeping them only "while the new is on," and then discharging them to hire others, in the belief that new clerks work with more enthusiasm, is very poor policy, and in the end the employer is greatly the loser by it. The best clerks are usually unwilling to engage for a few weeks or months in this way.

If the proprietor has not a thorough knowledge of the business in which he has just embarked, he should secure a first-class, competent and experienced clerk who possesses the requisite business experience, whom he may install as head clerk, and who may also act as his confidential adviser. To such a man the proprietor can afford to pay a good salary, or perhaps better, as an inducement to extra exertions in prosecuting the business, he may pay a fixed salary and also a per cent of the profits of the business. Thus giving the head clerk a direct, personal interest in the success of the business.

The salary of a good clerk must not be inadequate. A proprietor can better afford to pay a good fair price for service, than to have a dissatisfied clerk in the store. Besides where clerks are compelled to accept a compensation which is not sufficient for their support, the temptation to embezzlement and other species of dishonesty is increased.

On the other hand, the clerk should work faithfully in the interests of his employer, and endeavor to promote the success of the business in every possible manner. He should be on hand to open the store in the morning in good time, sweep the floor, dust the goods, arrange the wrapping paper, twine, nails, etc., in their proper places, and see that every department is kept up in neat and regular order. If any extra stress of labor is thrown upon the clerk, such as receiving new goods, taking an account of stock, etc., he should not manifest impatience, or grumble at his extra duties. The

proprietor will give a clerk an extra compensation where the extra demands are unusual or unreasonable.

Employers should govern their clerks with kind words and with tact, avoiding all displays of temper, and any inclination to arbitrary or tyrannical domination over them. If an employe makes a mistake it may be calmly pointed out to him, without any bustle or general fault finding. The proprietor should also show that he appreciates the services of his clerks, for if he has all censure and no praise for them he is in a fair way to be poorly served.

When an employer finds that he has a clerk who possesses evil habits, although he may be efficient, it is better to let him go, as they are liable to bring discredit, not only on themselves but also on the house. If a clerk has become so conceited and self-important, that he regards himself as essential to the success of the business, although the proprietor may regard him as indispensable, he should be discharged at once, for to keep him is to compromise authority and sacrifice self-reliance.

ENTERING INTO PARTNERSHIP.

The partnership relation involves responsibilities and duties, and should not be entered into without due deliberation. The proprietor of a business should examine his own character, and ascertain wherein he is deficient in those qualities which are so essential to success. Perhaps he may be inclined to be oversanguine or venturesome; or, he may be rather timid, or too conservative. Possibly, upon examining his character he may find that he possesses energy and enterprise or dash, while details are utterly distasteful to him, and that while he prosecutes his business vigorously, he is constantly a heavy loser through bad debts, or accounts not looked after and collected. Or, the merchant may find that with an increase of capital his business may be greatly extended and made more lucrative; new departments may be profitably added, of which the proprietor has no personal experience. In these and in a multitude of other cases there are sound reasons for entering into the partnership relation. The reason which impels the merchant to enter into co-partnership will also in many cases, determine the kind of a partner to be chosen. Thus, one with a faculty for detail work should be associated with one having enterprise and energy; the venturesome man with the conservative, and so on, in order that the firm may combine all the essential qualities to constitute a harmonious and successful whole.

In dividing up the business between themselves, the partners must not allow any feeling of exclusiveness to come in, but must at all times remember that the interest of the whole, is the interest of each, and each should freely consult the other concerning his own department of the work. Thus if one partner attends the selling, and the other the buying of the goods, it is impossible that the buyer should have a correct idea of the wants of the customers, and know what to buy and what not to buy, in the market, unless he is in frequent and close communication with the seller, and thus any feeling of exclusiveness would defeat the very object of the co-partnership.

The credit of a partnership is usually better than that of a single individual with the same amount of capital, for the reason that in case the sole proprietor of a business dies, the entire affairs must go into liquidation and perhaps a claim may be delayed several months before payment, but in the case of a partnership, if one partner dies, the debt then becomes a claim against the surviving partner, who would most likely pay it at once.

As a general rule it is best not to enter into partnership with relatives, for the reason that such co-partnership is not apt to be conducted strictly on business principles, and hence often lead to personal feeling, which should at all times be avoided. Partners, as a rule, should hold similar views on all social, political and moral questions;—not that these have any connection with the business, but that such views are necessary to harmony among associates. Men of different religious or political opinions, especially if they are of strong feelings, should be cautious about entering into the partnership relation. Persons of different nationalities are not apt to agree well together.

In forming a partnership the articles ought always to be drawn in writing. Important points to be stated clearly are: Name of the firm; when it begins, and how long it is to continue; how much is to be drawn for individual expenses, and when; the nature of business to be done; what personal service and capital each partner is to invest in the business; whether interest is to be allowed on capital; what disposition is to be made of the joint property if the partnership is dissolved; no member of the firm is to become bound to answer for debt, indorse a note, and the like, except for the business of the firm, without the written consent of the other members. One of the objects to be attained in written and formal articles of co-partnership, is the fact that when the partners sit down to form such a contract, they are led to reflect more seriously and minutely on the matter, and the associa-

tion is not so lightly entered into. The mutual discussion as to what should be incorporated in the articles of agreement, gives each a better understanding of his duties and responsibilities, and enables them to live together in a business way, in greater harmony and consequent prosperity thereafter.

HOW TO SELL GOODS.

Important above all other departments of the business, is that of effecting the sales. A failure here makes all a failure, while success in this department of the scheme makes all departments successful. There are men engaged in the retail trade, in inconvenient locations and incommodious store rooms, with disordered stock, weak credit and limited capital, who by native ability do sell goods, and make from year to year a handsome profit. But how much more pleasant and profitable, too, would such a business be, if in

INTERIOR VIEW OF A MODEL GROCERY STORE.

connection with the ability in selling goods was also combined, the other details and accessories so necessary to a successful and prosperous enterprise. On the other hand, there have been persons with considerable capital; with goods carefully selected with regard to the wants of the community, and purchased at favorable prices; store in good order and all the details well provided for, who, to the surprise of their friends have made a failure. All from their inability to effect sales.

To be successful in selling goods a salesman should have a full knowledge of them, their origin, and worth as compared with other goods of similar character, so as to be able to properly describe and commend them.

A good salesman must have a pleasing address, and never forget that it is a part of his business in dealing with customers to be gracious and patient at all times. He should be able to express his thoughts clearly, fluently, and in the most civil manner, and must not misrepresent the goods. Truthfulness breeds confidence, and confidence makes sales.

People like to be waited upon at the counter by polite and intelligent salesmen. Such persons, in selling goods, always attract customers. They do not weary of the display of kindness, and they are bound to satisfy their customers whether the latter buy or not. In their presence buyers will have little or no impulse to complain of the goods or prices, and in the course of time very few persons will dare to be rude in expression or manner. The goods should be so arranged upon the counters that the salesman can find the desired article immediately, for customers do not like to be kept waiting while a clerk climbs to the top shelf of the store in search of some article, and the ability to show a customer an article at once without having to hunt for it or consult other clerks, has of itself, made many a retail sale.

Politeness is an essential quality in a successful salesman. He should avoid an over display of politeness, as this has the appearance of being put on, or forced, and is distasteful to the customer. The clerk should, upon seeing a customer enter the store, advance to meet the customer, and with a slight bow, ask "What can I show you to-day," or a similar expression. Clerks who lean or sit on the counter and stare at customers as they come in, and who wait in their places until the customer comes directly up to them and asks to look at an article, before making a move, or even a recognition of the stranger, are not apt to sell a large quantity of goods, and you may hear the proprietor complaining of the dullness of business. The store is the home of the clerk, and he should meet his customers and welcome them the same as friends are welcomed in the home. No uneasiness or ill-humor should ever be manifested by a clerk if he fails in effecting a sale. He may have taken down a whole shelf of goods, requiring much labor to replace, but although no immediate sale was effected, he has by his obliging disposition laid a basis for a sale to-morrow or next week, and has secured a customer, which he would have driven away by any display of disobliging manner. A customer calls to match a piece of ribbon. The sale in such a case can only amount to a few cents and the clerk is very busy. He glances at the sample and says, "I don't think we can match it." The customer goes away, thinking that probably he could match but did not wish to bother with it. A clerk should manifest just as much anxiety to match the ribbon, as if he expected thereby to effect a sale of ten dollars. In fact, although he may be almost certain that he cannot match the ribbon, he should examine the stock and see, thereby convincing the customer of his willingness to please; or he may place the samples before the customer, with a request that the customer compare them, while he goes on with his other customer. Some salesmen talk too much, as if regarding their success in selling goods, as in proportion to the volubility of their language. Such salesmen are apt to talk too much about the goods, in the first place, and they are also apt to introduce into the conversation outside matters or topics of news, which tend to draw the customer's mind away from the article and defeat the sale. No outside matters should be allowed to encroach upon the mind until after the sale has been consummated. Other salesmen talk too little, and leave the customer to find out everything for himself. There is a mean between these two extremes, and the smart salesman, who has a good knowledge of human nature, will find this mean in the case of each customer, and will succeed in effecting sales where others would fail.

Other things being equal, no clerk can sell goods as successfully as the proprietor himself. There is a common tendency for the merchant, who has a few clerks employed, to put off the work of selling goods on them, but this is a great mistake. Of course, as the business increases, the proprietor will find his time largely taken up with general matters about the store, so that it will be impossible for him to sell many goods; but in a small business where this is not the case, the proprietor should mingle freely with his customers, show his appreciation for their trade, and learn their tastes and wants, that he may the more fully meet them. In small stores the mistake is too prevalent of seeing the proprietor ape the manner of the larger establishments, by mounting a stool and enthroning himself behind the desk, as a sort of driver of the two or three salesmen.

Selling goods for cash is the most satisfactory to all persons. It is more economical to the merchant, as it requires fewer clerks and less of his own time. No books of account, no making of bills, no dunning, collecting, suing or investigating the credit and responsibility of customers, comes in to demand a large share of the proprietor's time, attention and labor, but he is left to look after the wants of his customers, and the

other details of his business. A cash business has connected with it, less of losses. Owing to a failure of some customer to pay, the merchant who sells on credit necessarily loses from time to time, the price of his goods, and these losses, together with the additional expense of conducting a credit business, requires that the merchant who sells on credit should sell at a higher price than the cash merchant. Customers who pay their bills are charged enough more to compensate for the loss of those who do not pay. Then again, owing to the fact that collections have been slow, and the merchant cannot realize on goods sold, he must, in order to meet his obligations with the wholesale merchant, resort to the bank for a loan. The interest on the loan, goes in as an additional charge against each customer on goods sold, and thus the cash merchant is able to undersell by several per cent, the merchant who sells on credit. The merchant who sells for cash is also enabled to buy for cash, and thereby get a discount on his bills at the wholesale house, which gives him a decided advantage in selling goods at low prices.

But it is not always within the range of possibilities for the retail merchant to sell exclusively for cash, and under circumstances which call for the credit system there are various details and features which call for consideration and good judgment, for it requires far more ability to conduct a credit business than one on a cash basis. In the first place a credit business should never be embarked in, except in a locality where the character of the population is settled, and the retailer may know something of the honesty and financial standing of those whom he credits. He should first look well to the character of his customers as regards honesty, for this is a very important factor in a trustworthy debtor. But all honest persons have not the means of payment, and the merchant cannot afford to sell his goods on honesty alone, unless there is with it soon to follow, the means of settling the account. Some customers ask for credit because they are without money at the time, but expect soon to realize on their income. The carpenter will pay when his job is completed; the farmer when he "sells his corn," and the salaried man when "pay day" comes. It requires then the cool consideration and investigation of him who grants the credit to know that the reliance placed in future income and results, is not overestimated; and the contract of the carpenter that was to yield one thousand dollars profit, and enable him easily to pay his debt at the store, may not fall short and yield only one hundred dollars profit. In other words, the dispenser of credit must look at the prospects of his customer in their true light, divested of all roseate hues. Credit is also extensively based on the property in the possession of the customer, consisting of real estate and personal property; but this may often prove very delusive, for incumbrances may exist on them to such an extent as to leave nothing for the payment of debts. If the retailer grants credit at random he is almost sure to lose and in the end fail; and it is only by fully investigating and carefully weighing all the facts in every case which enables him to grant credit with safety. As a general rule in granting credit the following classes may generally be discriminated against, and sales to them should not be made on credit to any very large amount: People of extravagant habits, and little means to support them; intemperate people, or victims of vicious habits; those who have no particular regard for the rules of health and who are diseased; minors and married women not legally responsible for their debts; those who often change their place of residence; strangers, whose means of a livelihood are unknown; speculators, and those who show no disposition at middle life to accumulate or save anything toward sustaining themselves in later years.

Every retailer should have a fixed limit beyond which he should not extend his credits. This will depend upon the amount of capital employed in the business; the length of the time of credit granted to customers as compared with the term of credit granted him by the wholesale merchant; and also whether he has any means outside of the business which he may fall back upon in case of emergencies. Thus supposing that the amount of the merchant's stock at its lowest point is just equal to his capital, and that the time of his payments is two months later than the average of his outstanding accounts, it will require that he collect every dollar of his accounts, less the amount of his net profits on the same, within two months after they are due in order to meet his own payments promptly. On account of the risk attending the credit system, it is not best to have too large amounts outstanding. As a general rule, twice the amount of the retailer's capital should be the limit in extending credits, and many conservative retail dealers limit their outstanding accounts to the amount of their capital. The merchant should keep an account of the amount charged and paid daily, and when the obligations neared the limit he should begin to deny credit.

The opening of a rival store tends to reduce the sales of those already established. To counteract this the merchant is most liable, in his anxiety to effect sales, to extend credit to those who are unworthy of it, or to

give credit more freely to those who only had a limited credit before. This is a source of loss to the dealer, which is not easily seen at first, but arises mainly through the loss of the cash part of his custom, which is always safe, and an increase in credits which are the occasion of losses. By extending credits more liberally the merchant is enabled to make his weekly sales foot up as much as before, and he continues satisfied. No increase of gross profits is thought of to cover the extra loss he will be subject to; all he looks to for the time, is to see that at the end of the day his sales are as much as heretofore. He does not notice that his business is gradually changing into a credit one. By and by there is not so much cash received, and he begins to be short of money to pay his bills. He looks back to the time when he had plenty of money to meet all requirements in advance, and even discounted his bills, thereby making a profit. Now he has to pay interest often, and the interest account shows a larger debit than credit. The times seem "hard" with him and with his customers. Whenever he buys goods he feels the necessity of trying to get a little longer credit on his purchases, that pay day may be further off. He scarcely thinks it worth while to even look at the great bargains offered in the market for cash, as he has not the money to take advantage of such. He is quite at a loss to account for his want of prosperity. His annual sales foot up as large as ever, and he hopes that soon "times will be better." And thus hundreds of merchants go on in fancied security, doing business as they think, in the same way as when their sales were largely cash, while in reality they are losing money from over credit with its attendant losses. In such cases the only recourse of the merchant is to cut off all questionable credits, and then reduce his expenses, if he would save himself from ruin.

REPLENISHING THE STOCK.

From time to time the retailer finds it necessary to add new goods in order to keep his stock and assortment as the sales go on. In doing so there are various things to be carefully considered. As stated before, the merchant should be constantly passing through his stock in order that he may inspect his sales, and see what classes of goods are most in demand, and become thoroughly acquainted with the tastes and desires of his customers, in order that he may have this indispensable knowledge when he comes to lay in new stock. In every class of business there is what may be called a staple line of goods. These are articles which are constantly in demand throughout the year, and the merchant should keep a good assortment of them, buying as he sees his assortment or stock getting low. This part of the buying need give the merchant very little trouble, as his only concern will be how he may buy the cheapest. But there is another class of goods which are in demand for a brief season of the year only, as scythes in the mowing season, or skates in the ice season, and the shrewd merchant must, before the season opens, lay in a stock to meet the demand and yet not so large as to have a quantity left, which will be unsalable for another year. There are certain articles, especially of wearing apparel, which "go out of fashion," and are thus unsalable by the retailer, and in order to meet the demand for fashionable goods, and yet not incur the loss attendant upon having the goods left on his hands, the retailer must use keen perception and precaution in buying. Where the wholesale market is near at hand, it is especially advisable to buy this class of goods in small quantities, and replenish often, rather than undertake to anticipate the entire season's sales.

It often happens that the retail merchant finds near the close of the season that some of the articles have not met with as ready a sale as he expected, and that his stock of the season's articles is much larger than he anticipated at its close, and consequently that his entire stock is larger than he wishes, or can well afford to carry over the dull season. As he cannot reduce his stock by selling off the season's articles he allows his staple articles to be run down, so that his assortment is broken, and he loses custom on that account. This must be carefully guarded against, and while the merchant must still continue to buy, he should buy very cautiously, meanwhile reducing his stock of the unseasonable articles as best he can, by selling them at cost, or urging their sale more strongly.

In every well conducted store, there should be kept in a convenient place, a memorandum or slate, upon which the clerks may each record the names of such

articles as are sold out or nearly out, the names of articles which have been called for but have not been kept, and the names of such articles as are in unusual demand, and are liable to raise in price or soon be unobtainable on account of the unusual demand. The proprietor may then take this memorandum and from it, together with other matters of his observation, judge as to what to buy and how much, and with proper sagacity he will always have the articles wanted in season, at a reasonable price, and yet never seem to have an undue quantity when the season has passed by.

PAYING FOR GOODS.

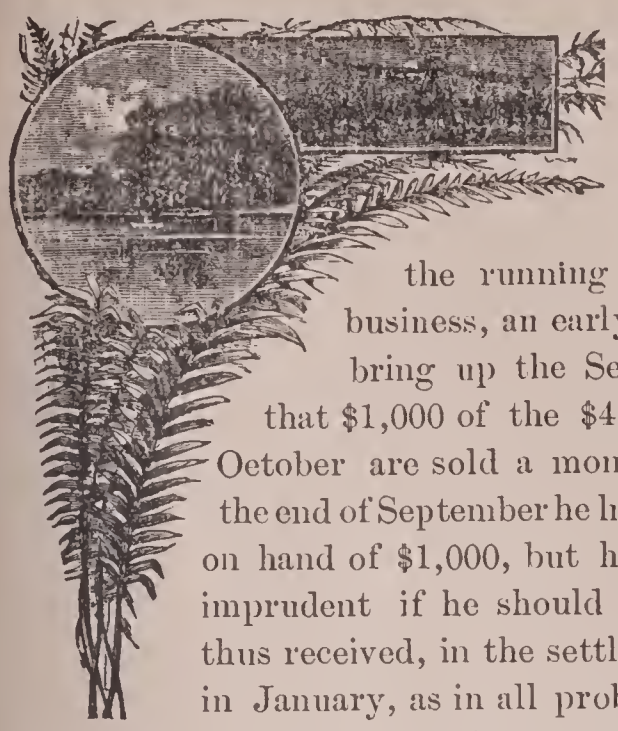
As a general rule the merchant should avoid giving his promissory notes to the wholesaler, or indeed to any one, unless it be for special and forcible reasons. Although a promissory note may be promptly met at maturity, the fact of its existence is an advertisement of debt, and a merchant's credit is injured to a certain extent by having his notes circulating through the community. Wholesale merchants are willing enough to sell any reasonable quantity of goods on credit, and allow a suitable time for payment, and if the retailer meets his bills promptly at maturity he will fare well at the wholesaler's hands, and be enabled to buy all the stock he needs, seldom giving notes in payment. But he should keep his credit good with the wholesale house, and this is done by prompt paying. The wholesale merchant can scarcely go into the methods and details of the retailer's business, to know that he is conducting his business on correct principles and making a fair profit; if he has been well introduced and his payments are prompt, this is enough. In this way retail merchants have sometimes held high credit at the wholesale market, by prompt paying, while at home they were incumbered and embarrassed with debt. Then there are other retailers who make a good profit, and are successful and well able to pay all obligations, but who through carelessness, neglect to meet their payments promptly at the wholesale market, and hence have low credit there, when they might as well be enjoying the best.

A retailer will always find it to his advantage to be prompt, and stand well at the wholesale house. He should buy with such caution and forethought as will enable him so see his way clear to pay for the goods promptly when due, and should avoid buying what he does not really want, because importuned by the salesman, and because he knows his credit is good.

Another matter which may seem to be an exceedingly small one, but which is of much more consequence than simply its size, is the express charges on money sent by express or the exchange on drafts and checks, where money is remitted in that manner. The difference in the real value and the face value of a check may be twenty-five cents, owing to the fact that it is payable at a distance from where the wholesaler receives it, and it is subject to a "shave" of this amount in the wholesaler's hands, which is a direct loss to him, and while the amount may be small, yet the retailer cannot afford to take this petty advantage. The same may be said of express charges. These the retail merchant should always prepay, so that the full amount of money be placed in the wholesaler's hands, subject to no charges or deductions. The retailer might by taking these little advantages of his wholesale merchant, perhaps in a year's time, save fifty or seventy-five dollars, but it would be at the expense of his reputation for honesty, and he would in the end be greatly the loser by his petty meanness.

The retailer, having had a good trade, often finds himself in possession of funds in advance of the maturity of his obligations. In such case, some merchants speculate in wheat, or invest in western land or town lots, possibly buy lottery tickets or take a flyer on the grain market. These are the methods employed by weak minds, to whom money is a source of annoyance.

The best use the merchant can put his surplus cash to, is in anticipating his own indebtedness, and obtaining a discount on his bills thereby. In this way merchants frequently make as much as the rent paid for their store-room. When a merchant has money to anticipate a debt he should consider how he may best apply it. Thus, supposing there are several obligations at the wholesale house, some due soon, others due quite a time hence. Of course the discount on the longer bills will be greater, and hence this is a temptation to pay them, and get the benefit of the larger reduction. But if the longest bills are paid, perhaps there may be a deficiency of cash to meet early bills. It is necessary, then, to examine and see how this cash surplus arises. If it arises from the natural profits of the business, it may be safely used to discount whatever bills it would be most to the merchant's advantage to have discounted, but if it arises largely from sales or collections being made earlier than usual, it is an indication that the receipts of cash will be less during the next few weeks, and the merchant should therefore look well after payments maturing during that time. If for instance, a dealer should make his estimate of sales for the month of October to be probably $4,000 and



should on this basis, obligate himself to make payments to that amount including the running expenses of the business, an early fall trade might bring up the September sales so that $1,000 of the $4,000 to be sold in October are sold a month earlier, and at the end of September he has a surplus of cash on hand of $1,000, but he would be very imprudent if he should apply the $1,000 thus received, in the settlement of bills due in January, as in all probability he would find that his October receipts would not meet that month's indebtedness.

There is another feature which deserves mention at this point. The dealer may be buying goods of several wholesale houses, and his credit may range higher at one house than another. In applying a payment to undue obligations, he should select such houses as will strengthen his credit by the payment. Thus, if his credit standing is weak in a house where he expects to buy largely in future, he should apply the payment to debts due at that house.

LOSSES.

There are various losses which are incident to the mercantile business, and which the shrewd merchant must calculate upon and meet. In all classes of goods there is a loss constantly arising from depreciation in value caused by damage in handling; exposure to dust; the fading of colors from exposure to light, and "moth and rust which doth corrupt," as well as from "thieves which break through and steal." This depreciation in the value of goods will depend largely upon the articles themselves. Thus, fancy or ornamental goods are subject to greater damage and decrease in value, by being exposed or shopworn. Articles go "out of fashion" and are then comparatively valueless. New and improved articles, better adapted to supply the wants of man, are constantly being invented and put upon the market, and the old goods are reduced in popularity and value. In all these cases the merchant may guard himself against loss to a certain extent by precaution, observation and foresight, but to avoid loss entirely is impossible. Thus he may anticipate, to a certain extent, the changes of fashion, and dispose of most of his stock before the demand ceases, or at a reduced price after the change, but some loss may be inevitable. He may provide against the damage of exposure and dust, by covering his goods and using care in their preservation. The expense of a muslin covering to be thrown over the goods while sweeping the store, or a window shade to protect the goods from the direct rays of the sun at certain times of day, will be many times saved in the protection afforded the stock.

Losses by fire, can in most cases be guarded against by precautions in the construction of the heating apparatus. See that the stove or furnace is properly provided with sheet zinc to protect the woodwork near it, and that flues are kept in good repair. In dry goods stores it is not uncommon to see a great variety of fancy articles strung upon the chandeliers or gas pendants, or stretched on lines dangerously near the light. Combustibles, such as benzine, gasoline, alcohol, turpentine and gunpowder, should be placed in a part of the store which is not much frequented, and that part should be known as "the dangerous corner." After taking all possible precautions against fire, the retail merchant should besides keep his stock well insured in responsible companies.

From burglars, the best precaution is to have a clerk sleep in the store. If for any reason this clerk should be sick or called away, another should take his place. When it is known that a clerk sleeps in the store, burglars will usually select such evenings as they know the clerk to be out late and will operate then; hence unseasonable hours of such a clerk are to be avoided. Bolts, bars and locks may not be an entire protection against burglars, but they deter the rascals to a certain extent, and are hence to be commended. Strong sheet iron shutters, securely fastened, are good protection for both doors and windows, and the appearance of watchfulness and security will often deter the burglar from an attempt to steal, where the trouble and risk are so great. For this reason a padlock on the outer door is a bad precaution, as it gives notice that there is no one inside. A light left burning throughout the night so that the whole interior of the store may be seen by any passerby, and especially when a large clock is placed near the light, so that the belated traveler homeward looks in to see the time of night, will render the place too conspicuous for a burglar.

Losses from petty stealing by dishonest customers and loafers, otherwise called "shop-lifting," can only be guarded against by precautions, such as keeping a sharp eye on suspicious characters, who do not seem to have any special aim or object in the store. In a

store where the stock is confused and disarranged or kept in a careless manner, depredations from this class of persons is greatest.

Peculations of clerks and employes, is a source of frequent loss to the retail merchant, and is very difficult to discover and punish. Many employers seldom scrutinize the doings of their clerks, and trust with implicit confidence all who are in their employ. When at last their eyes are opened, and they see that something is wrong, without troubling themselves to detect and punish the criminal, they simply discharge him and turn him loose to prey upon some other unsuspecting dealer. Sometimes clerks are permitted to purchase any article kept for sale in the store, and are allowed to keep their own account of it, or make payment for it without referring the matter to the employer. This often leads to pilfering, as the clerk neglects to charge the item, and quiets his conscience by saying to himself, "I will charge it in the morning," and then forgets or neglects it, and finally argues himself into the belief that he was entitled to the article anyhow, as a compensation for extra work last week in unpacking goods until late at night. The next time the clerk wants an article he takes it in the same way, and his conscience is more easily silenced by argument, that his salary is less than it ought to be, and that he is sort of getting even; and so on, from bad to worse, till his stealings become larger and more frequent, and amount to hundreds or thousands of dollars.

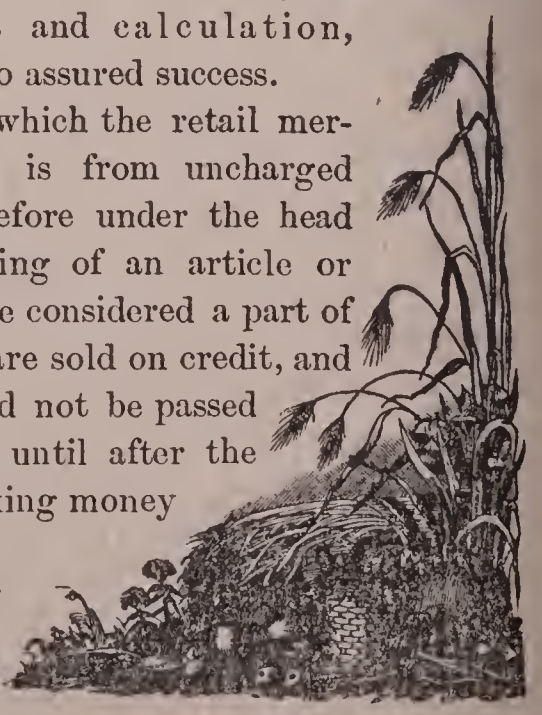
The employer may prevent the first step toward crime, by a watchful supervision over his clerks, and he should have a strict rule that no clerk is to purchase to take out of the store any article except directly from himself. He should also employ all checks and safeguards which he finds practicable, and if a clerk is found to be dissipating or disposed to spend his wages in questionable society, or has a demoralizing influence on other clerks, he should be discharged at once.

Another loss in the retail trade is from omission to charge goods sold. When all hands are quite busy a well-known customer enters, and after looking about the store, selects a hoe, and walks out with it, saying as he goes, "Charge this to my account." Nobody charges it, the customer forgets it, and the amount is lost. These losses can be all avoided by a little care and discipline.

KEEPING THE BOOKS.

A thorough and systematic system of accounts is to the merchant, what the mariner's compass is to the ship captain,—a guide through a voyage on the seas of business enterprise. Good book-keeping tends to save and turn to the best use that which is already made, or by its records of the past, throw some light on the future for the dealer's guidance. The best kept books can never put a dollar in the cash drawer, but they can save hundreds from unnecessarily going out, if there has been sufficient talent in conducting the business, to put them in.

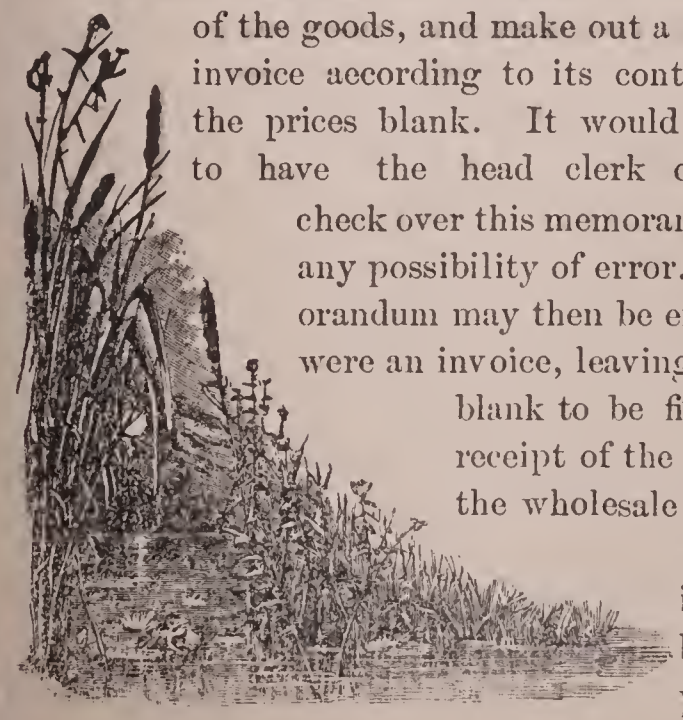
The two main essentials in the accounts of a store, are to show at all times the amounts which the merchant owes, and the amounts which others owe him. These results may be accomplished by "single entry," but it is very desirable that a set of books should be so kept that far more than this may be shown concerning the condition of the business. The book-keeping in a retail store of average size need not be a heavy duty; a half hour or so at the close of each day will suffice to post up the day's business, and afford the proprietor his customary daily view of the condition of his business. Many merchants neglect the books of their store and allow them to run behind from week to week and month to month, only getting finally cleared up and a "balance sheet" off once a year, or once in six months. The management of their business is something like a prolonged battle, in which they only emerge from the smoke and confusion once a year or once in six months, to look over and marshal their forces, carry off the dead and wounded, inspect their trophies, and note the vantage ground which they may have gained in the struggle; whereas, they should be so situated that they can view the whole field from day to day, and see how the battle is going, in order to know just when to recede and when to advance. Under such a system much of the result is luck and chance, which under wiser and more systematic management, forethought and calculation, would have turned into assured success.



One of the losses which the retail merchant is subject to, is from uncharged goods, as explained before under the head of losses. The charging of an article or bill of goods, should be considered a part of the sale, if the goods are sold on credit, and the merchandise should not be passed over to the customer until after the entry is made. In taking money in the settling of an account, the entry should be made before the receipt is made out

or delivered to the person paying. The retail merchant who sells on credit, should have a part of the counter or a separate platform near where the books are kept, set apart for the purpose of placing goods sold on credit, while the entry is being made. Then on the other side of the book-keeping desk, or near by it, a similar space allotted for the goods after they have been charged and before they have been delivered or sent out. This arrangement need not occupy much space but will greatly facilitate the charging of goods sold.

An equally important part of the business is the entering of goods bought, in order that the merchant may at all times know who he owes and how much. There should be in the store a particular place for receiving, opening and inspecting goods, and they should be kept in this place until after they are entered upon the books, when they may then go into the stock. With every box, case or parcel of goods there should arrive also an invoice, and a careful comparison should be made before the goods are entered. If the invoice and the goods are compared and found to agree, the invoice is then pasted in a large stub invoice book, in that portion set apart by the index, to the name of the firm of whom the goods were purchased, and in a small blank book is entered simply the date, name, and amount of the bill, for convenience in posting, and adding up purchases. It sometimes happens that the invoice is lost in the mails, and although the goods may have arrived, the invoice does not come to hand. In such case the dealer may let the goods lie unpacked until he gets a duplicate invoice from the wholesale house; but this might be very inconvenient as the goods might be needed at once, and to let them lie would be to lose custom. The merchant should then open the box, and take especial pains in the examination of the goods, and make out a memorandum invoice according to its contents, leaving the prices blank. It would be well also to have the head clerk of the store check over this memorandum to avoid any possibility of error. This memorandum may then be entered as if it were an invoice, leaving the amount blank to be filled in, upon receipt of the invoice from the wholesale house. The memorandum invoice should be carefully preserved for comparison with the genuine when it is received, and if the goods are partly or entirely sold out the matter can be adjusted as well, if there should be found a discrepancy.



In retail stores of any considerable size it is now quite customary to have some one to take charge of the cash receipts, make change, etc., and the salesman uses a small cash ticket. The object of this ticket is to furnish the cashier with the amount of the sale, by which at the close of the day the cash account may be verified, if there should be an error; but the ticket is susceptible of further uses. By having the initials of the salesman on the ticket which he puts in to the cashier, the amount of his daily sales may be from this ticket drawn off and recorded.

FORM OF A CASH SALES TICKET.

.....18.....

.....

Bought of Gingham, Muslin & Co.

8 pap. Cambric,	*20* -	*1*	*60*
12 Prints,	*15* - -	*1*	*80*
2 pr. Hose,	*60* -	*1*	*20*
		4	*60*

Salesman, G. L. M.

These tickets need not be large, and only on a cheap quality of paper, but they should be bound or fastened together, so that one at a time may be detached as needed. This ticket may also be used in' case goods are not sold for cash, but are to be charged. It is an excellent stimulus to salesmen to have the amount of their daily sales recorded, as it affords the proprietor an opportunity to see who is, and who is not, a profitable man to retain in his employ. The average daily sales of a clerk should form some basis for fixing his next year's salary. The following form will illustrate how each saleman's sales may be kept, so as to afford the desired information at any time. This may be kept by having ruled columns in the regular cash book, or by keeping this in the cashier's small or "petty" cash book, which is, perhaps, preferable:

FORM FOR PETTY CASH BOOK.

18—.	G.S.M.	C. A.	R.W.S.	G. P.		
Sept. 16	$18 45	$16 25	$10 14	$3 15	47	99
" 17	26 18	18 43	13 90	88	59	39
" 18	23 40	17 20	absent	1 84	42	44
" 19	19 80	15 43	25 64	2 78	63	65
" 20	sick	14 19	14 30	4 13	32	62
" 21	17 90	17 22	10 88	1 45	47	45
Total for the week					293	54

Another valuable adjunct to the regular set of books kept by the merchant, should be a summary book for the cash and credit sales of the year. This will give the merchant an opportunity to compare at any time the business of this year with the business of the corresponding season last year. It matters little as to the form of this book, provided it supplies the desired information. The following form would be as good as any for this purpose:

ACCOUNT OF DAILY SALES, 18—.

Day of Month	JANUARY.		FEBRUARY.		MARCH.	
	Cash.	Credit.	Cash.	Credit.	Cash.	Credit.
1	.. ..	.. ..	46 25	84 32		
2	.. ..	.. ..	87 60	35 16		
3	45 32	62 40	42 80	86 45		
4	36 20	48 60	32 70	64 20		
5	42 84	60 35	.. ..	.. ..		
6	27 36	85 40	85 80	64 70		
7	88 63	64 20	32 64	47 90		
8	.. ..	.. ..	90 85	64 50		
9	85 90	49 32	56 85	85 20		
10	88 64	67 30	84 20	62 45		
11	90 40	89 30	90 63	84 33		
12	20 18	35 64	.. ..	.. ..		
13	92 87	36 43	48 25	46 32		
14	90 46	88 62	16 42	18 95		
15	.. ..	.. ..				
16	45 84	34 16				
17	84 16	47 18				
18	72 40	100 85				
19	46 30	95 20				
20	84 16	32 70				
21	90 10	85 40				
22	.. ..	.. ..				
23	25 40	40 16				
24	46 80	85 20				
25	40 45	49 60				
26	18 20	15 30				
27	90 25	110 80				
28	60 30	28 70				
29	.. ..	.. ..				
30	90 50	45 60				
31	29 20	84 18				
	1,532.86	1,542.59				

This book should be ruled with columns for each month of the year, on opposite pages, so that may be seen at a glance the entire year's business, without turning leaves. The labor required in making up these summaries may seem too great to compensate the merchant in the benefits which he receives therefrom, but such is not the case. A little time at the close of each day will suffice to draw off all the items to their proper accounts in the ledger, and also to post up the amounts in the summary book, and the time thus employed, would reap the merchant a much more profitable harvest than discussions on political and other questions, "spinning yarns," etc., with loafers and loungers, who find refuge in any store that will harbor them.

At the end of the year, or what is better, at the end of every six months, the merchant should take an account of stock, and close his books, in order to ascertain exactly what his gains and losses have been. The inventorying of a stock of goods is an important matter, and should not be turned over to boys or inexperienced clerks, as a duty beneath the proprietor's attention. The proprietor should himself actually pass on the values to be set to the various articles or goods as they are handled, dusted and replaced on the shelves. Some articles may have greatly decreased in value, owing to certain causes of deterioration or supply, which a clerk knows nothing about, and if the inventory is made on an incorrect basis, the profits as shown by the books when they are closed, will be to a greater or less extent fictitious. The time of taking the inventory is also an excellent opportunity for the proprietor to see what goods have remained on hand too long, and to adopt suitable measures to have them sold off.

After the books have been closed and a balance sheet drawn off, showing the condition of the business, this should then be so arranged that it may be compared with the results of previous years.

A portion of the same book as is used for the summary of *Daily Sales* may be ruled off and set apart for this purpose, and may upon one page set forth the results of several years' business, so that the merchant has a bird's-eye view of his past business career. This would appear something as follows:

SUMMARY OF THE BUSINESS OF GINGHAM, MUSLIN & CO.

	1882.		1883.		1884.	
Mdse. on hand at 1st of year	7,386	10	8,416	20	8,762	50
Bought during the year	26,342	84	28,716	90	24,318	60
Sold " " for cash.	18,624	30	19,304	80	21,463	50
Sold " " on credit	11,416	30	14,360	25	8,642	80
Mdse. on hand, close of year	8,416	20	8,762	50	9,246	30
Gross profits on sales,	4,727	86	5,294	45	6,271	50
Interest account, Dr.	216	30	418	20	342	60
" " Cr.	318	60	443	20	402	80
Profit and loss, Dr.	142	80	216	30	805	45
" " Cr.	8	60	14	30	21	45
Expense, store	1,432	60	1,682	30	1,750	45
" private	1,625	42	1,756	80	1,620	42
Outstanding accounts	3,625	84	3,824	60	3,725	42
Estimate of loss on same	320	00	345	00	250	
Cash on hand at end of year.	716	30	814	25	1,732	80
Indebtedness	2,763	40	3,420	80	285	60
Net profits added to capital.	1,317	94	1,333	35	1,926	83
Capital at end of year	7,285	60	8,618	95	10,545	78

In these latter days of commercial activity and competition, merchants are coming to base their dealings and ventures more and more on statistical informa-

tion, and the most important of such, is that concerning the merchant's own business. He should make a study of this, and compare frequently the present with the past, and then reflect on the conditions of trade in general and draw his inferences therefrom. A regular and systematically kept set of books will not of itself make a business successful, but it will point the way to success, and will be one of the important adjuncts in any line of retail trade.

EXPENSES AND PROFITS

These two words are full of meaning to the merchant. The expenses of clerk hire will usually regulate itself, as when trade is slack the merchant will be most apt to let go those employes whose services are not required, or as the business grows, he will employ more help as he needs it. The rent of the store is usually quite a large item, and one which should be well considered before entering into the lease. The price paid for rent will of course depend upon the nature and extent of the business, and the profit on goods sold. As a general rule a rent which does not exceed ten per cent on the gross profits, would not be considered exorbitant, while one which exceeded twenty per cent would be so considered. The merchant's expenses for both the store and his living should not exceed fifty per cent of the gross profits of his business, as there will be other losses which will come in to reduce the other fifty per cent, and in the end he will find that his net gain for the year has not been adequate.

THE MERCHANT SOCIALLY.

While the attentive, exemplary, and careful dealer, pursuing the even tenor of his way, will succeed and accumulate a competence, without the exercise of the qualities of sociability and popularity in the community, it is true that other men, no more capable than he, will succeed sooner and far easier by the exercise of these qualities. The merchant should therefore be a public spirited, social and genial man, mingling with the community freely, and ingratiating himself quietly and imperceptibly into the respect, esteem and confidence of all. He should be present at meetings intended for the public good, and should aid in all works for the improvement of the town and its citizens. At the same time he should avoid espousing a partisan cause, for he thus antagonizes a certain portion of the community. He should never allow his store room to be the meeting place, either formally or informally, of any political club, party or clique, even though he may take no active part in the meeting himself, for he will be held as sanctioning the movement, and will be condemned by the opposition party.

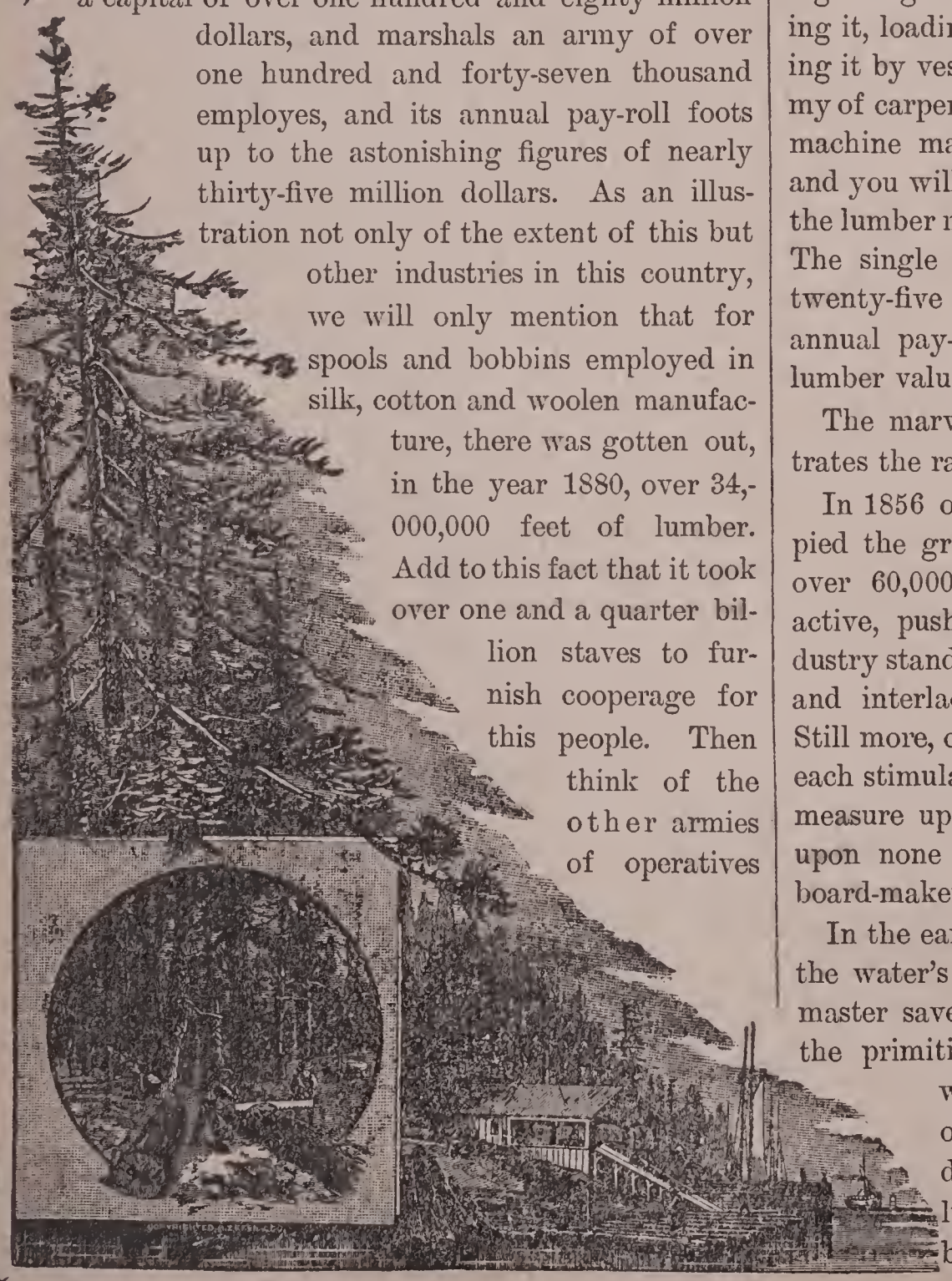
The retail merchant, in engaging in various public enterprises of the town, should avoid carrying the matter to such an extent as will draw his mind away from his business, or consume time which should be devoted to his store. Instances are not rare, where retailers are drawn into various organizations, being president of this, secretary of that, and treasurer of the other, until one-half their time and energy is taken up with these matters, to the manifest injury of their business.

The retail merchants of this country form a large and influential class, and their influence for intelligence, upright dealing, and legitimate trade should be highly beneficial to all communities. To them the greatest reward for such examples will always be, that while they strengthen and profit their own calling by proper ways, they also earn the greater compensation of the respect and esteem of their fellow men.

OUR LUMBER INTERESTS.

LUMBER-MAKING.

THE lumber interest is one having an extent and magnitude which it is hard to comprehend from statistics. It employs in these United States a capital of over one hundred and eighty million dollars, and marshals an army of over one hundred and forty-seven thousand employes, and its annual pay-roll foots up to the astonishing figures of nearly thirty-five million dollars. As an illustration not only of the extent of this but other industries in this country, we will only mention that for spools and bobbins employed in silk, cotton and woolen manufacture, there was gotten out, in the year 1880, over 34,000,000 feet of lumber. Add to this fact that it took over one and a quarter billion staves to furnish cooperage for this people. Then think of the other armies of operatives shaping those staves into barrels and hogsheads, making that 34,000,000 feet of lumber into spools and bobbins, and the other and still greater armies handling the nearly forty-eight billion feet of lumber, not including shingles, lath or staves, made in a single year, piling it, loading it upon vessels, cars and wagons, conveying it by vessel, train and wagon to the other great army of carpenters and joiners, furniture and agricultural machine makers, and all the various uses of lumber, and you will get some idea of the extent and reach of the lumber manufacture and trade of the United States. The single state of Michigan employs directly over twenty-five thousand men in this business, pays an annual pay-roll of seven million dollars and scatters lumber valued at the mill at over $52,000,000.



The marvelous growth of the Saginaw region illustrates the rapid increase of the lumber industry.

In 1856 one small saw-mill and a few shanties occupied the ground where now in twenty miles you find over 60,000 people, and all busy with the hum of active, pushing business life. No manufacturing industry stands for and by itself. They are all dovetailed and interlaced by mutual and dependent interests. Still more, commerce, trade and agriculture are all and each stimulated and fostered as well as dependent in a measure upon each other and the manufacturer. But upon none are they more dependent than upon the board-maker.

In the early days, when the streams were fringed to the water's edge or arched with pines that knew no master save old age, *the mill went to the logs.* It was the primitive mill with its cumbrous, slow-moving water-wheel, and its one or two "sash" or framed saws of leisurely motion. A daily production of ten thousand feet of lumber was a large cut—a something to be bragged about.

Now, with the steam mill located for convenience of shipping, with its "gangs" of from twenty to forty saws, and its "circulars" wheeling their 900 revolutions every 60 seconds, *the logs come to the mill*, and three hundred thousand feet per day is not a thing worth the boasting.

The lumberman of to-day must first "locate his logs." He owns a tract, say, of 100,000 acres (only a medium one, by the way) of pine land. Yet it is not all pine forest, but also of oak and other hard woods, with tamarack swamps here and there, and in the late summer or early autumn his spies, or rather prospectors, search out and locate the scene of the next winter's operations. With the hunter's outfit of coffee, bacon, flour, salt and pepper, guns and axes, the party of log hunters take themselves to the woods. Their quest is often embarrassed by too many trees. Occasionally a post of observation must be sought in a lofty tree top. Should the trunk be straight and limbless for a long distance, the log hunter seeks another tree that he can fell against the one he wants to climb. Ascending his lofty perch he scans the ground in all directions, takes in the location of all clumps or tracts of pine, the direction and course of streams. Descending, the party ascertains the location of tracts of pine, calculates the distance to haul, places to bank upon river or creeks, surface and nature of the ground, and also determines the location of the winter camp.

Before the snow begins to fly the earlier "teams" of hands, horses, oxen and men have been collected and started to the woods to locate and arrange the camp and winter's scene of operations.

The lumberman does not build any part of his business as he who "commenced to build and counted not the cost." He knows how much lumber he wants to cut the next season. Making a wide margin for accidents from too little water to float his winter's cut of logs from the creeks, from logs that may be "hung up" by the way, and all the other accidents and incidents that "logging is heir to," he calculates that ten men will get him logs equivalent to a million feet of boards. He knows by experience about how much they will eat and provides accordingly. With his log hunters he has calculated the probable length of haul and necessary number of teams, and so provides them and for them.

If any considerable hay-producing ground is on his tract he has had it cut, stacked and, as far as possible, defended against fire.

The advance of his small army has reached the ground and located camp. The "camp," or "camps," and necessary shelters for the horses and oxen have been put up—log houses, of course, strongly and warmly built, for both man and beast. Bunks for the men, rude but comfortable, with matresses of odorous pine boughs are made ready for the coming force. The ground has been cleared around the camp, for a "burn out" would be an irremediable disaster in midwinter. Already the main road and branches have been located and partially cleared of trees and logs, skids and levers prepared, and banking places selected and cleared. In short, preparations for the winter are far advanced when the main force arrives, timed as nearly as possible with the first good snow fall.

A DAY AT THE CAMP.

It is now midwinter. The snow lies from one and a half to four feet deep through the forest. The vistas among the trees look like the aisles of some vast cathedral, and the green boughs far aloft are crowned with pure, fleecy white.

At earliest dawn all is astir inside the camp—breakfast dispatched, teams are fed and cared for, and with the coming light the choppers are filling the woods with the ring of the axe, the long resounding crash tells of the fall of another monarch of the forest, words of command issue to the outgoing teams, and soon teams of six to ten oxen or horses are bearing their loads along roads trodden hard as ice to the banking ground.

Loading is largely done "from the ground" by the strength of the teams, as a chain is fastened around the log and it is drawn upon the sled. Four, five, and six large logs are thus piled up in a huge load of from six to ten tons, if the roads are in prime condition. The first loads are dumped upon the ice and the logs piled as high as possible. The pile grows shoreward and up the banks—shored and skidded, so that they will float as easily as possible with the spring rise. Meantime the cook is preparing a huge dinner, not of dainty, but, better still, of hearty brawn-producing food, for well he knows how men can eat who have breathed deep breaths of pine land winter air, and swung their axes with strong arms.

With the approach of night the woods become silent as woods ever are, and the wearied laborers gather to supper with good appetites. The teamsters carefully attend to the comfort of horse or oxen, for it is expected that a team will be in as good condition in the spring as in the fall, if a teamster knows his business. After supper, each chopper inspects his axe, sharpens it if necessary, boots are carefully tallowed

and all prepare for the morrow, while hearty laughter, joke, witticism, and songs sung by strong and often melodious baritones and tenors, while away a couple of hours.

To their credit, be it said, liquor seldom intrudes its presence in the loggers' camp, and then very sparingly. A drunken chopper has no business in the woods. He would be a perpetual peril, and soon learn that "his room was better than his company."

Old books and magazines are read and re-read, stories told and re-told, packs of cards shuffled until the spots disappear and knaves and kings bear closer resemblance than is even their wont. The daily newspaper is a thing of remembrance only, and the great world and its events and happenings remembered once in a while when some one ventures to wonder how it goes on.

The winter and its work come to a close, and the extra outfit stored with the snow, the teams and teamsters depart, leaving the men who are to "run the drive" awaiting the spring rise of water.

CUTTING THE LOGS.

Pike poles about eight feet long with a strong spike in the end are prepared or looked after, boots with soles bearing huge sharp spikes are brought out and coated with tallow, and all made ready for the spring rains and the run.

Meantime, the skirmish line of logs has been drifting leisurely down the creeks with the ice, and so on with the river.

The spring rains now come and are anxiously watched by the lumberman at his home and the men in camp.

Too little water and the logs "will not come out," that is, they will not be floated. Too much water, and they will stray off among the trees along the banks and be left "hung up" by the quickly receding stream.

To obviate danger from both causes the men at camp are working with lever and pike to push, coax and roll into the stream. A rear guard, each attended by its traveling cook, follow the drive on each side of the stream, to coax or drive stragglers into the current, and so at last they reach the great "booms."

Thirty million feet of logs occupy from five to ten miles of a river, and demand the watchful care of from fifty to a hundred men.

The great danger feared is a jam. In some narrow place two huge logs may strike the opposite sides of the stream. The up-stream ends naturally swing toward the center and they meet like an inverted V, in this manner Λ. In an hour the river is full of logs for a half mile or more, piled on and over each other by the partially dammed-up current.

Far back up the stream the loggers see the danger signal by the slowing current and hasten to the front.

A daring, skillful man undertakes to cut the logs that act as the keystone and set the imprisoned host at liberty. With spiked boots he steps from log to log, and soon the ringing strokes of his axe show that he has selected his point and commenced what may be his last hour's work. He must needs know when to stop and how to retreat. A quick jump and rapid flight to shore over the now tossing logs, and the jam is broken and the logs again surging on their course to the sorting boom.

A sorting boom consists of enormous timbers strung

across the current and leading the logs into a pocket. Each log has its owner's mark, made by the chopper, and this mark is registered and known amongst others of the craft.

These booms are usually owned by a company, who charge so much per thousand for booming and sorting, and is placed at the head of the river suitable for rafting. An opening being made, each log is made to go to its owner's place and there formed into a raft. On some of the western rivers rafts are connected by ropes attached to each log in the raft; on others, poles are used instead of ropes. For rudders, from four to six twelve-foot planks are inserted in the ends of as many small trees and hung on pivots at either end of the raft. Each rudder or immense steering oar is worked by one or more men, as the case requires.

Sometimes a small hut is built upon the raft, and so equipped, it lazily glides down the current. We said "lazily," but that is not always true. Swift, tumbling rapids may intervene, as upon the Wisconsin river, at Grand Rapids and Mosinee. In that case a special pilot is taken aboard. At Grand Rapids, Wisconsin, the rapids are about a mile in length. Huge granite boulders, as large as a small house, raise their heads in places and threaten certain destruction to any raft that does not give them room-way. The pilot is taken on board above the rapids and the rudders double manned. Carefully guided the raft commences the run. At one place, safety ropes are necessary, as the bow plunges under water, and then the whole raft, and the men stand knee-deep in the foaming current.

Safely over the rapids, dangerous short bends threaten, and so, with just enough danger to give spice, the hardy raftsmen float onward, sometimes for hundreds of miles, to the mill.

At both Grand Rapids and Mosinee, a yearly loss of life is almost certain. Indeed, from the forest to the lumber yard, death and violent death ever threatens. At least one out of every hundred men who goes to the woods returns not home. No business, unless it be railroading, is as destructive to life and limb as lumbering.

The long journey is usually over in May or about the first of June, and the rafts come gliding into the mill booms or are fastened along the river side.

If in the booms, the fastenings are unloosed and the log lies idly awaiting its next attack. It soon comes. A spiked pole guides it to the apron or logway just as the driver's goad drives the unwilling steer from Kansas prairie into the gangway of the slaughter-house.

Nor does the simile end there. In a few moments both will be flayed, dismembered and so changed as to be utterly beyond recognition.

As the one receives a blow in the head from the pointed hammer of the killer, so the log receives a sharp blow that drives a spike into its head, or is prodded along upon the log carriage. The chain attached to that spike tightens and strains, and the log glides up the logway or the apron and is thrown upon its side. A couple of sure, swift strokes, and it is secured to its bed by two clamps.

The sawyer reverses or throws forward a lever, a sudden jar, and it glides steadily forward to the circular saw, spinning its 900 revolutions per minute and seemingly waiting for its victim. Thirty seconds and the cruel saw-teeth, curved forward like a serpent's fang, have eaten their way along its length, and the "edging" or slab has fallen away from the parent log, to be borne on a tramway to the lath saw or "thrown over among the rubbish" as food for the devouring furnace or, as in the Saginaw region, to fill a street now below level, or become part of a new wharf lot.

The log, bereft of one side, has another as quickly torn away until it is thrown, now a thing of four sides, to another bed, and again secured in gyves of steel.

Another lever is moved, another jar, and our log moves unresistingly toward the "gang," with its twenty or more saws securely fastened in their frame, and now dancing up and down like an uncanny thing of life, waiting for another victim for its insatiate jaws. A minute more and the gang has moved steadily on through the log, which is now no longer a log, but lumber.

It would not take more than a touch of the transcendental philosophy to say that "purified by wounds and dignified by suffering, the reddish brown log has bravely borne its apotheosis and is now ready to take on higher and nobler duties."

Another movement of another lever and the board pile, which it now is, is thrown, still quivering from the strokes of the saw, upon a car, and with its companions hurried to the vessel dock or railroad platform where it is thrown, or rather they are thrown, awaiting shipment to one of the great lumber distributing points, such as Toledo, Cleveland, Buffalo, Milwaukee, and notably beyond all, Chicago.

We have thus followed the fortunes of our log from the proud pre-eminence of the monarch of the forest, standing in majestic pride among its fellows, until we have almost felt it were a sentient being, until its

apotheosis into lumber, ready for some of the numberless uses that have given to our time the name of "The Wooden Age."

The census reports of 1880 furnish the following figures, as regards the number of mills, hands employed, etc., in the United States:

Number of mills	25,708
Number of men employed	141,564
Females and children	6,392
Total number employes	147,956
No. feet lumber cut	18,091,396,000
No. M shingles made	5,555,046,000
Value of produet	$233,367,729

The best statistics obtainable from our Canadian neighbors, places their production for the year 1882 at 520,921,600 feet, or about twice the amount produeed in the state of Pennsylvania alone.

We have said that this business is a hand to hand fight with the elements from first to last, from the forest to the lumber yard. Fire is liable to sweep over and ruin the whole traet of forest. As but a short time ago, in the Huron peninsula of Michigan, hundreds of thousands of aeres were ravaged by a single fire. The forest, eamps, and even villages, with houses and other property were all swept away. Not only so, but sueh fires are always aceompanied by the loss of many lives.

No one who has not experieneed it, knows or can even imagine the horrors of a forest fire. With the air all flame and smoke, and not a breath that does not earry death into the lungs and air passages, the fire rushes upon a hamlet or village, and in a short time every house, barn or tree is a mass of flame.

And the lumberman who was yesterday a millionaire, is now well-nigh a pauper. At the mill constant watchfulness, and the best appliances for extinguishing fires are neeessary, to defend the owner from the attaek of the neeessary fire to furnish power; or the servant beeomes master and sweeps away hundreds of thousands of dollars of property by a single spark. A tug passing along the river may leave a spark in the dry sawdust and the wind fan it into a flame.

The fire reeord for 1882 shows a loss of over $5,500,000 upon lumber mills, including shingle and planing mills, or so mueh eapital absolutely destroyed beyond recall. Insuranee may and does mitigate the foree of the blow to the owner who avails himself of it.

Too little snow in the woods adds to the expense of hauling logs to the stream, as wagon trueks must be used or snow hauled and placed upon the tracks.

Too mueh snow, and the work of loading, beating traeks and hauling is largely inereased. Too little water and the logs are not floated, or if so, the lumberman ean only get them down to the main river by damming the current here and there. Too much water, and many of his logs go rambling off into the forests, and get hung up, or may bring such a pressure as to break the booms, and then the logs of a score or half a hundred lumbermen go down the river in a wild stampede, worse than that of a herd of Texas steers upon the prairie.

The latter may be gathered up and driven baek, but the logs cannot. For the men, death or mutilation is ever close at hand from falling trees, broken, flying branches, on the drive, in the jam, and at the mill.

A hardy, breezy, hearty set, as a rule, are our lumbermen, as befits men who have borne their full share in the fight with nature, and in the wonderful development of industrial pursuits in the past century.

The saw-mill is first heard of in Germany, in the fourth century, though we have no means of knowing that the Germans first applied the use of maehinery to the saw and used water power.

We also find saw-mills in the island of Maderia in 1420, or seventy years before Columbus made the diseovery of Amerieа.

From references by an old traveler, they were used in Norway in 1530.

The first mill in this country seems to have been ereeted in 1633, in Massaehusetts, many years before their trial in England. One was put up about 1663, near London, by a Dutehman, but he was foreed to dismantle and remove it, on aeeount of the indignation of the working elasses, who feared it would deprive the sawyers of their labor. The English of that day seem, even among the higher elasses, to have clung to the elay floor.

In 1700 another was tried, but the builder had to remove it. Another, in 1767, was destroyed by a mob, and it was not until just one century ago, that they were firmly established in use.

At that time every stream in the settled part of New England, and in several other of the eolonies, were turning any quantity of water wheels.

Indeed, in 1750, Dr. Douglas says, "New England abounds in saw-mills of eheap and slight work; they generally earry only one saw, and one man and a boy may, in twenty-four hours, saw 4,000 feet of white pine boards."

One mill, at Bay City, some years ago, cut 361,000 feet in twelve hours. Another, last year, cut 18,000,000 feet of lumber, and from the exhaust steam made

20,000 bushels of salt, besides selling his slabs at one dollar per cord.

Such production is possible only where the white pine is found in abundance, the principal supply of which comes from Minnesota, Wisconsin, Michigan, Pennsylvania and Maine. The Northwestern district, as it is called, or the states of Minnesota, Wisconsin and Michigan, produced the following amounts for the ten years from 1873 to 1882, inclusive·

	Lumber.	Shingles.
1873	3,993,780,000	2,277,443,550
1874	3,751,306,000	2,473,216,555
1875	3,968,553,000	2,515,838,240
1876	3,879,046,000	2,900,530,725
1877	3,595,333,496	2,706,756,755
1878	3,629,472,759	2,561,490,750
1879	4,806,943,000	2,859,112,750
1880	5,651,295,006	2,972,912,160
1881	6,768,856,749	3,546,006,817
1882	7,504,737,864	4,094,277,658
Total	47,549,323,874	28,907,575,960

As 5 M shingles are estimated as 1,000 feet of lumber, the total production of these three states for ten years would be, lumber, 47,549,323,874; shingles as lumber, 5,781,515,192; total, 53,330,839,066.

THE MILL.

Next to the white pine in usefulness and in amount is the yellow, or Georgia pine, readily distinguished from any other variety by the length of its bright green leaves, which measure ten to fifteen inches in length. It extends southward from North Carolina, and is especially abundant in Georgia and Florida.

Along the sea-board and for a distance inland of from fifteen to thirty miles, the pine is very scattering, and nearly worthless for building purposes.

The supply is found between the base of the mountains and the sea-coast. It is much harder and stronger

than the white pine, takes a fine polish, and when varnished and oiled, makes a splendid wood for interiors and floors. It is especially adapted for ship building. It is rapidly gaining upon the northern market, where durability, strength under lateral pressure and fine natural finish is desired.

Whenever the tree is injured and vegetation ceases, the wood becomes surcharged with resin and forms the "fat pine" of song and story.

According to the census reports of 1880, the six states of North and South Carolina, Georgia, Florida, Alabama and Mississippi had 2,635 saw-mills, giving employment to 12,346 men and 330 women and children, who produced 1,547,614,000 feet of lumber, 57,-918,000 shingles, and 96,077,000 lath. These added over ten million dollars to the production of the six states.

These figures make but a small show alongside of the production of Michigan, Wisconsin and Minnesota, but they do show the enterprise now being developed in those states.

The manufacture of yellow pine has some advantages, the most prominent of which results from the moderate climate. Another is that the lands are fair grazing lands as well as pine forest.

Oxen used in hauling the logs may be unyoked and turned loose to graze, and be kept in good order. In answer to inquiries addressed to a gentleman who had been south on a prospecting tour, he said that he intended to unite grazing and lumbering, as the yellow pine forests were free from underbrush. He had already bought, and was bargaining for more land, and should stock it with both sheep and cattle, while getting off his lumber.

CALIFORNIA REDWOOD.

Another tree now being quite extensively used for lumber is the California redwood. This is almost exclusively found in California, as but a few clumps of it grow north of the Oregon line.

Redwood grown on marshy, wet ground is comparatively valueless. It is apt to be swelled or hollow-butted, and more or less rotten. But that grown on rolling or rising land is free from blemish. Redwood will not bear a heavy lateral strain, and is valueless for uses requiring lightness and strength to support weight. It also has the queer peculiarity of shrinking endwise.

Redwood grows to an immense size, and logs fourteen feet in diameter are not uncommon. At the mill such logs are first attacked at the center and cut in two by a muley saw. Each half is then ready for the "double circulars" and the gang. The average diameter of redwood logs runs from six to eight feet, and of white pine would be called mammoths.

OREGON AND WASHINGTON TERRITORY.

The great western supply of pine comes from this state and territory, and is furnished by the sugar pine, growing in groves, of which many of the trees reach the hight of two hundred feet with a diameter of ten feet, while isolated specimens increase that hight over a hundred feet and double the diameter. The western yellow pine, which is the most widely distributed, as well as the most abundant of any of the pines of the Pacific coast, and often reaches the hight of one hundred feet, furnishes a heavy resinous wood, less valuable than the sugar pine, and the mountain pine, which closely resembles the white pine of the Atlantic and Mississippi valley states.

The lumber industry of the Pacific coast is only in its infancy, but the near completion of the Northern Pacific railroad, with branch roads of that and the Union Pacific, will open up a large territory for both manufacture and sale of lumber. We subjoin the statistics of 1880:

	Lumber.	Shingles.	Lath.
California.....	304,795,000	138,718,000	2,420,000
Oregon.....	177,171,000	5,040,000	18,245,000
Washington Territory	160,176,000	3,610,000	6,550,000
Total.....	642,142,000	147,368,000	27,215,000

Much has been said and written as to the speedy exhaustion and complete cessation of lumber supply, especially of the white pine.

A Chicago daily now before us, shows by argument, figures and map, that, "Twenty-five years ago, the supply of pine timber was believed inexhaustible. Ten years ago it was thought it would outlast the present century; now the most hopeful predict its extinction within a dozen years. The white pine harvest is nearly over, and it will not be long before the woodsman stands, ax in hand, beside the last tree, his occupation gone." He then demonstrates, to his own satisfaction, that "six years more and the Chicago district will be exhausted."

We heard just such predictions fifteen years ago. But while it is a fact that much, if not a great majority of the best and most accessible pine, has been marketed, yet the end is not just yet. The forests have been skimmed over. A lumberman whose log hunters declared a certain tract exhausted, visited it himself, and last winter established his camps on the deserted

ground of seven years ago, and secured a little larger cut of logs than he did seven years before.

Two brothers bought a farm two and one-half miles from Ludington, Michigan, of what was supposed to be cleared land. This winter they have hauled into the town and sold 100,000 feet of good logs, which brought them $750. and they say they shall make a better winter's crop next year.

In Massachusetts, over a million feet of second-growth pine lumber was cut last year, and a gentleman tells us that he owns 600,000,000 feet in that state of pure virgin forest, not touched by the logger's axe.

It is true that the "river route," as described in the commencement of this article, has perhaps seen its flush times. Yet the raft and boom will do duty for many a coming year.

RAILROAD LOGGING.

Meanwhile a new way of supplying the mill with logs has come into extensive use, and that is the logging railroad. The lumber country being comparatively level (we are speaking now chiefly for Michigan, Minnesota and Wisconsin) the work of grading the railroad track is very slight.

PORTER'S LOGGING LOCOMOTIVE.

Ties are there for the cutting, and it is estimated that to build a good, fair track, equip with good locomotive, especially adapted for the work, and also the necessary flat cars, only makes the expense of hauling from 25 to 40 cents per thousand for a haul of from five to eight miles, and some lumbermen claim that as compared with the loss of logs by the old methods, the logging railroad is not only more economical as to timber, but fully as cheap for the manufacturer, besides bringing into market any quantity of timber that could not otherwise have been reached.

This has certainly put away the "day of evil things" predicted by correspondents, who generally get their figures of standing pine from men with large stocks of lumber now on hand. Meantime let us try to get a comprehensible idea of the census figures.

If some youngster wants to know how the lumber cut in these United States would look in one pile, let him look at some neighbor's farm, containing a full section, or 640 acres of land, and then think, if he can, of seeing it piled solidly with lumber, without a hole anywhere, higher than an ordinary three-story brick block or a very high barn with a basement, and he will have some idea of the amount of lumber cut in the 25,708 saw-mills of this nation, except that he would have to borrow 80 acres from a neighbor to complete piling the whole of it.

If he wanted to dispose of the shingles and lath cut in the same year, he would cover three more 80-acre lots to the same hight. If in a city or town, he can imagine one hundred and twenty ordinary blocks or squares and the streets between all solidly covered as high as a large three-story building, with the lumber alone, and then by putting the shingles and lath on top of that pile, he would get his pile up to the top of a five-story building. Loaded upon cars, it would make a solid train extending over a third of the way around the earth.

Such figures are hard to get an idea of that we can grasp, but that is true of nearly all the great industries of our time. They all reach figures that are beyond comprehension, and illustration by familiar objects must be selected before we get them out of the region of the intangible.

LUMBERMAN'S EXCHANGE.

At a very early period in the history of the western lumber trade, Chicago became the center of distribution for a wide range of territory. The astonishing and far-reaching development of her railroad system, her commanding position for grain shipments, soon placed Chicago as the great business mart of the west.

Recognizing this fact, believing that the lumber trade of the city were to be ever increasing, and that clashing interests would tend to demoralize dealers and retard not only their own interests, but also those of the whole lumber business, and also those of the city, a few lumbermen, in the year 1859, organized the

"Lumberman's Board of Trade and Exchange of Chicago," with the following declared objects, as shown in the preamble to their rules and by-laws:

"Having a desire to advance the commercial character, and promote the general lumber interest of the city of Chicago and the Northwest, and wishing to inculcate just and equitable principles in trade, establish and maintain uniformity in the commercial usages of the city, acquire, preserve and disseminate valuable business information, and, with a view to avoid and adjust, as far as practicable, the controversies and misunderstandings which are apt to arise between individuals engaged in trade when they have no acknowledged rules to guide them—we, the members of the Lumberman's Exchange of Chicago, by virtue of the power vested in us by the preceding charter, do hereby agree to be governed by the following rules and by-laws."

Under their charter, they proceeded to appoint inspectors to examine, measure and inspect lumber, timber, shingles, wood, etc., and to prescribe rules and fix grades by which such inspectors should be governed.

It was also one of the articles of their incorporation that, as among themselves, the certificate of their inspectors should be evidence between buyer and seller as to grade, quantity, quality or character of lumber so inspected and graded.

A committee of arbitration consisting of five members was appointed "to investigate and decide all disputes and difficulties of a financial, mercantile or commercial character which may be submitted to it."

An appeal could be taken from the decision of the committee of arbitration to the committee of appeals.

It was the duty of this committee to review such written evidence and decisions of the arbitration committee as had been demurred to, and the decisions of the committee on appeals was to be binding.

After a short life of one year this institution "hibernated," or took to winter quarters, and laid dormant for several years. Grades and inspections ran wild. Each dealer graded as he saw fit. The "common" of one yard was "third clear" of another, and the exchange was reorganized in 1866, under A. Carter as president. For several years after that it dragged out a puny existence.

Then came the great fire of 1871, and the immense inpour of lumber to rebuild the city and supply the country trade as well.

The annual lumber cut began to appal those who took any interest in the matter at all, and a general call was made for "light."

The new Lumberman's Exchange of Chicago began to assume strength. Membership began to increase and its grades became generally recognized. It now numbers 156 members, and its influence is felt not only in all English-speaking countries, but wherever forestry is recognized as a subject of national importance and legislation.

The exchange holds a monthly meeting of its board of directors to fix rates, hear reports of committees, listen to complaints, etc.

In the dull season the exchange holds lunch meetings, which have grown to be of no little importance, as cultivating social, friendly amenities.

A lunch is furnished by some firm, and is succeeded by a season of speech-making, in which the members do not confine themselves to lumber alone, but discuss and criticise the finances and government of city and county, in their usual free and easy manner.

The lunches have done much to bring out the strong social feelings and real regard of the members of the exchange for each other, despite the keenness of their competition outside.

If there is any call to which the "man of boards" is quicker to respond than to any other, it is the cry of distress. Instinctively his hand reaches for his pocket-book, as the burned-out Huron district of Michigan, the yellow-fevered patients of the South, the tornado-swept citizens of Grinnell, Iowa, and the victims of water at Braidwood coal mines, and along the Ohio river, can testify.

The total receipts of forest products at Chicago, during the year 1882, aggregate, as shown by the books of the exchange, 2,116,341,000 feet of lumber and 260,906,494 shingles, while the sales ran up to about $50,000,000. In addition to this there were received 59,737,000 lath, 2,462,866 cedar posts, 3,644,711 railroad ties, 67,092 cords of wood, 22,160 cords of bark, 24,255 cords of slabs, and 250,867 telegraph poles, making in all about $54,000,000. These figures throw a stronger light upon the magnitude of the lumber interests of Chicago than pages of rhetoric could possibly do.

COOKERY RECIPES

Ale to Mull.—Take a pint of good strong ale, and pour it into a saucepan with three cloves and a little nutmeg; sugar to your taste. Set it over the fire, and when it boils take it off to cool. Beat up the yolks of four eggs exceedingly well; mix them first with a little cold ale, then add them to the warm ale, and pour it in and out of the pan several times. Set it over a slow fire, beat it a little, take it off again; do this three times until it is hot, then serve it with dry toast.

Ale, Spiced.—Is made hot, sweetened with sugar and spiced with grated nutmeg, and a hot toast is served in it. This is the wassail drink.

Beef Tea.—Cut a pound of fleshy beef in thin slices; simmer with a quart of water twenty minutes, after it has once boiled and been skimmed. Season if approved.

Beef Tea.—To one pound of lean beef add one and one-half tumblers of cold water; cut the beef in small pieces, cover, and let it boil slowly for ten minutes, and add a little salt after it is boiled. Excellent.

Beef Tea.—Cut lean, tender beef into small pieces, put them into a bottle, cork and set in a pot of cold water, then put on the stove and boil for one hour. Season to taste.

Black Currant Cordial.—To every four quarts of black currants, picked from the stems and lightly bruised, add one gallon of the best whisky; let it remain four months, shaking the jar occasionally, then drain off the liquor and strain. Add three pounds of loaf sugar and a quarter of a pound of best cloves, slightly bruised; bottle well and seal.

Boston Cream (a Summer Drink).—Make a syrup of four pounds of white sugar with four quarts of water; boil; when cold add four ounces of tartaric acid, one and a half ounces of essence of lemon, and the whites of six eggs beaten to a stiff froth; bottle. A wine-glass of the cream to a tumbler of water, with sufficient carbonate of soda to make it effervesce.

Champagne Cup.—One quart bottle of champagne, two bottles of soda-water, one liqueur-glass of brandy, two tablespoons of powdered sugar, a few thin strips of cucumber rind; make this just in time for use, and add a large piece of ice.

Chocolate.—Scrape Cadbury's chocolate fine, mix with a little cold water and the yolks of eggs well beaten; add this to equal parts of milk and water, and boil well, being careful that it does not burn. Sweeten to the taste, and serve hot.

Coffee—Is a tonic and stimulating beverage, of a wholesome nature. Use the best. For eight cups use nearly eight cups of water; put in coffee as much as you like, boil a minute and take off, and throw in a cup of cold water to throw the grounds to the bottom; in five minutes it will be very clear.

Or, beat one or two eggs, which mix with ground coffee to form a ball; nearly fill the pot with cold water, simmer gently for half an hour, having introduced the ball; *do not boil*, or you will destroy the aroma.

Coffee.—The following is a delicious dish either for summer breakfast or dessert: Make a strong infusion of Mocha coffee; put it in a porcelain bowl, sugar it properly and add to it an equal portion of boiled milk, or one-third the quantity of rich cream. Surround the bowl with pounded ice.

Currant Wine.—One quart currant juice, three pounds of sugar, sufficient water to make a gallon.

Egg Gruel.—Boil eggs from one to three hours until hard enough to grate; then boil new milk and thicken with the egg, and add a little salt. Excellent in case of nausea.

Lemon Syrup.—Pare off the yellow rind of the lemon, slice the lemon and put a layer of lemon and a thick layer of sugar in a deep plate; cover close with a saucer, and set in a warm place. This is an excellent remedy for a cold.

Lemonade.—Tak a quart of boiling water, and add to it five ounces of lump-sugar, the yellow rind of the lemon rubbed off with a bit of sugar, and the juice of three lemons. Stir all together and let it stand till cool. Two ounces of cream of tartar may be used instead of the lemons, water being poured upon it.

Raspberry Vinegar.—Fill a jar with red raspberries picked from the stalks. Pour in as much vinegar as it will hold. Let it stand ten days, then strain it through a sieve. Don't press the berries, just let the juice run through. To every pint add one pound loaf sugar. Boil it like other syrup; skim, and bottle when cold.

Summer Drink.—Boil together for five minutes two ounces of tartaric acid, two pounds white sugar, three lemons sliced, two quarts of water; when nearly cold add the whites of four eggs beaten to a froth, one tablespoonful of flour and half an ounce of wintergreen. Two tablespoonfuls in a glass of water make a pleasant drink; for those who like effervescence add as much soda as a ten-cent piece will hold, stirring it briskly before drinking.

Blackberry Syrup.—To one pint of juice put one pound of white sugar, one-half ounce of powdered cinnamon, one-fourth ounce mace, and two teaspoons cloves; boil all together for a qarter of an hour, then strain the syrup, and add to each pint a glass of French brandy.

Tea.—When the water in the teakettle begins to boil, have ready a tin tea-steeper; pour into the tea-steeper just a very little of the boiling water, and then put in tea, allowing one teaspoon of tea to each person. Pour over this boiling water until the steeper is a little more than half full; cover tightly and let it stand where it will keep hot, but not to boil. Let the tea infuse for ten or fifteen minutes, and then pour into the tea-urn, adding more boiling water, in the proportion of one cup of water for every teaspoon of dry tea which has been infused. Have boiling water in a water-pot, and weaken each cup of tea

as desired. Do not use water for tea that has been boiled long. Spring water is best for tea, and filtered water next best.

Iced Tea a la Russe .—To each glass of tea add the juice of half a lemon, fill up the glass with pounded ice, and sweeten.

General Directions for Making Bread.—In the composition of good bread, there are three important requisites: Good flour, good yeast, [and here let us recommend Gillett's Magic Yeast Cakes. They keep good for one year in any climate, and once used you will not do without it. All grocers keep it] and strength to knead it well. Flour should be white and dry, crumbling easily again after it is pressed in the hand.

A very good method of ascertaining the quality of yeast will be to add a little flour to a very small quantity, setting it in a warm place. If in the course of ten or fifteen minutes it raises, it will do to use.

When you make bread, first set the sponge with warm milk or water, keeping it in a warm place until quite light. Then mold this sponge, by adding flour, into one large loaf, kneading it well. Set this to rise again, and then when sufficiently light mold it into smaller loaves, let it rise again, then bake. Care should be taken not to get the dough too stiff with flour; it should be as soft as it can be to knead well. To make bread or biscuits a nice color, wet the dough over top with water just before putting it into the oven. Flour should always be sifted.

Brown Bread, for those who can eat corn-meal: Two cups Indian meal to one cup flour; one-half teacup syrup, 2½ cups milk; 1 teaspoon salt; 3 teaspoons of Gillett's baking powder. Steam an hour and a half. To be eaten hot. It goes very nicely with a corn-beef dinner.

Brown Bread.—Stir together wheat meal and cold water (nothing else, not even salt) to the consistency of a thick batter. Bake in small circular pans, from three to three and a half inches in diameter, (ordinary tin patty-pans do very well) in a quick, hot oven. It is quite essential that it be baked in this sized cake, as it is upon this that the raising depends. [In this article there are none of the injurious qualities of either fermented or superfine flour bread; and it is so palpably wholesome food, that it appeals at once to the common sense of all who are interested in the subject.]

Brown Bread—Take part of the sponge that has been prepared for your white bread, warm water can be added, mix it with graham flour (not too stiff).

Boston Brown Bread.—To make one loaf:—Rye meal unsifted, half a pint; Indian meal sifted, one pint; sour milk, one pint; molasses, half a gill. Add a teaspoonful of salt, one teaspoonful of soda dissolved in a little hot water; stir well, put in a greased pan, let it rise one hour, and steam four hours.

Boston Brown Bread.—One and one-half cups of graham flour, two cups of corn meal, one-half cup of molasses, one pint of sweet milk, and one-half a teaspoon of soda; steam three hours.

Corn Bread.—One-half pint of buttermilk, one-half pint of sweet milk; sweeten the sour milk with one-half teaspoon of soda; beat two eggs, whites and yolks together; pour the milk into the eggs, then thicken with about nine tablespoons of sifted corn meal. Put the pan on the stove with a piece of lard the size of an egg; when melted pour it in the batter; this lard by stirring it will grease the pan to bake in; add a teaspoon of salt.

Excellent Bread.—Four potatoes mashed fine, four teaspoons of salt, two quarts of lukewarm milk, one-half cake Gillett's magic yeast dissolved in one-half cup of warm water, flour enough to make a pliable dough; mold with hands well greased with lard; place in pans, and when sufficiently light, it is ready for baking.

French Bread.—With a quarter of a peck of fine flour mix the yolks of three and whites of two eggs, beaten and strained, a little salt, half a pint of good yeast that is not bitter, and as much milk, made a little warm, as will work into a thin light dough. Stir it about, but don't knead it. Have ready three quart wooden dishes, divide the dough among them, set to rise, then turn them out into the oven, which must be quick. Rasp when done.

Graham Bread.—For one loaf, take two cups of white bread sponge, to which add two tablespoons of brown sugar, and graham flour to make a stiff batter; let it rise, after which add graham flour sufficient to knead, but not very stiff; then put it in the pan to rise and bake.

Italian Bread.—Make a stiff dough, with two pounds of fine flour, six of white powdered sugar, three or four eggs, a lemon-peel grated, and two ounces of fresh butter. If the dough is not firm enough, add more flour and sugar. Then turn it out, and work it well with the hand, cut it into round long biscuits, and glaze them with white of egg.

Rice and Wheat Bread.—Simmer a pound of rice in two quarts of water till soft; when it is of a proper warmth, mix it well with four pounds of flour, and yeast, and salt as for other bread; of yeast about four large spoonfuls; knead it well; then set to rise before the fire. Some of the flour should be reserved to make up the loaves. If the rice should require more water, it must be added, as some rice swells more than others.

Sago Bread.—Boil two lbs. of sago in three pints of water until reduced to a quart, then mix with it half a pint of yeast, and pour the mixture into fourteen lbs. of flour. Make into bread in the usual way.

Steamed Bread.—Two cups corn meal; 1 cup graham flour; ½ cup N. O. molasses; salt and teaspoonful of soda. Mix soft with sour milk, or make with sweet milk and Gillett's baking powder. Put in tight mold in kettle of water; steam three hours or more. This is as nice as Boston brown bread.

Use this receipt with flour instead of graham; add a cup of beef suet, and it makes a nice pudding in the winter. Eat with syrup or cream.

Biscuits.—Mix a quart of sweet milk with half a cup of melted butter; stir in a pinch of salt, two teaspoonfuls of baking powder and flour enough for a stiff batter. Have the oven at a brisk heat. Drop the batter, a spoonful in a place, on buttered pans. They will bake in fifteen minutes.

Cream Biscuits.—Three heaping tablespoons of sour cream; put in a bowl or vessel containing a quart and fill two-thirds full of sweet milk, two teaspoons cream tartar, one teaspoon of soda, a little salt; pour the cream in the flour, mix soft and bake in a quick oven.

French Biscuits.—Two cups of butter, two cups of sugar, one egg (or the whites of two), half a cup of sour milk, half a teaspoon of soda; flour to roll; sprinkle with sugar.

Rye Biscuits.—Two cups of rye meal, one and a half cups flour, one-third cup molasses, one egg, a little salt, two cups sour milk, two even teaspoons saleratus.

Soda Biscuits.—To each quart of flour add one tablespoon of shortening, one-half teaspoon of salt, and three and a half heaping teaspoons of Gillett's baking powder; mix baking powder thoroughly through the flour, then add other ingredients. Do not knead, and bake quickly. To use cream tartar and soda, take the same proportions

without the baking powder, using instead two heaping teaspoons cream tartar and one of soda. If good they will bake in five minutes.

Tea Biscuits.—One cup of hot water, two of milk, three tablespoons of yeast; mix thoroughly; after it is risen, take two-thirds of a cup of butter and a little sugar and mold it; then let it rise, and mold it into small cakes.

Bannocks.—One pint corn meal, pour on it boiling water to thoroughly wet it. Let it stand a few minutes; add salt and one egg and a little sweet cream, or a tablespoon melted butter. Make into balls and fry in hot lard.

Breakfast Cakes.—One cup milk, one pint flour, three eggs, piece butter size of an egg, two teaspoons cream tartar, one teaspoon soda, one tablespoon butter.

Buckwheat Cakes.—One quart buckwheat flour, four tablespoons yeast, one tablespoon salt, one handful Indian meal, two tablespoons molasses, not syrup. Warm water enough to make a thin batter; beat very well and set in a warm place. If the batter is the least sour in the morning, add a little soda.

Quick Buckwheat Cakes.—One quart of buckwheat flour, one-half a teacup of corn meal or wheat flour, a little salt, and two tablespoons of syrup. Wet these with cold or warm water to a thin batter, and add, lastly, four good-tablespoons of Gillett's baking powder.

Spanish Buns.—Five eggs well beaten; cut up in a cup of warm new milk half a pound of good butter, one pound of sifted flour, and a wineglassful of good yeast; stir these well together; set it to rise for an hour, in rather a warm place; when risen, sift in half a pound of white sugar, and half a grated nutmeg; add one wineglass of wine and brandy, mixed, one wineglass of rose-water, and one cupful of currants, which have been cleaned thoroughly. Mix these well, pour it into pans, and set it to rise again for half an hour. Then bake one hour. Icing is a great improvement to their appearance.

Bath Buns.—Take 1 lb. of flour, put it in a dish, and make a hole in the middle, and pour in a dessert spoonful of good yeast; pour upon the yeast half a cupful of warm milk, mix in one-third of the flour, and let it rise an hour. When it has risen, put in 6 ozs. of cold butter, 4 eggs, and a few caraway seeds; mix all together with the rest of the flour. Put it in a warm place to rise. Flatten it with the hand on a pasteboard. Sift 6 ozs. of loaf sugar, half the size of a pea; sprinkle the particles over the dough; roll together to mix the sugar; let it rise in a warm place about 20 minutes. Make into buns, and lay on buttered tins; put sugar and 9 or 10 comfits on the tops, sprinkle them with water; bake in a pretty hot oven.

Graham Gems.—One quart of sweet milk, one cup syrup, one teaspoon soda, two teaspoons cream tartar, little salt; mix cream tartar in graham flour, soda in milk, and make it as stiff with the flour as will make it drop easily from the spoon into muffin rings.

Brown Griddle Cakes.—Take stale bread, soak in water till soft, drain off water through colander, beat up fine with fork, to one quart of the crumb batter, add one quart each milk and flour, and four eggs well beaten. Mix, bake in a griddle.

Wheat Gems.—One pint milk, two eggs, flour enough to make a batter not very stiff, two large spoons melted butter, yeast to raise them, a little soda and salt. Bake in gem irons.

Johnnie Cake.—One pint of corn meal, one teacup of flour, two eggs, one pint of sweet milk, one tablespoon of molasses, one tablespoon of melted butter, a little salt, one teaspoon of soda, one teaspoon of cream of tartar; bake in square tins.

Mush.—Indian or oatmeal mush is best made in the following manner: Put fresh water in a kettle over the fire to boil, and put in some salt; when the water boils, stir in handful by handful corn or oatmeal until thick enough for use. In order to have excellent mush, the meal should be allowed to cook well, and long as possible while thin, and before the final handful is added.

Fried Mush.—When desired to be fried for breakfast, turn into an earthen dish and set away to cool. Then cut in slices when you wish to fry; dip each piece in beaten eggs and fry on a hot griddle.

Muffins.—One tablespoonful of butter, two tablespoons sugar, two eggs—stir altogether; add one cup of sweet milk, three teaspoons of baking powder, flour to make a stiff batter. Bake twenty minutes in a quick oven.

English Pancakes.—Make a batter of two teacups of flour, four eggs, and one quart of milk. Add, as a great improvement, one tablespoonful of brandy with a little nutmeg scraped in. Make the sixe of frying pan. Sprinkle a little granulated sugar over the pancake, roll it up, and send to the table hot.

Pop Overs.—Three cups of milk and three cups flour, three eggs, a little salt, one tablespoon melted butter put in the last thing; two tablespoons to a puff.

Rolls.—To the quantity of light bread-dough that you would take for twelve persons, add the white of one egg well beaten, two tablespoons of white sugar, and two tablespoons of butter; work these thoroughly together; roll out about half an inch thick; cut the size desired, and spread one with melted butter and lay another upon the top of it. Bake delicately when they have risen.

French Rolls.—One quart flour, add two eggs, one half-pint milk, tablespoon of yeast, kneed it well; let rise till morning. Work in one ounce of butter, and mold in small rolls. Bake immediately.

Rusks.—Milk enough with one-half cup of yeast to make a pint; make a sponge and rise, then add one and a half cups of white sugar, three eggs, one-half cup of butter; spice to your taste; mold, then put in pan to rise. When baked, cover the tops with sugar dissolved in milk.

Waffles.—One quart of sweet or sour milk, four eggs, two-thirds of a cup of butter, half a teaspoonful of salt, three teaspoonfuls of baking-powder; flour enough to make a nice batter. If you use sour milk leave out the baking-powder, and use two teaspoons soda. Splendid.

Yeast.—In reference to yeast, we advise the use of Magic Yeast Cakes; it keeps good a year, and works quicker and better than other yeasts.

Suggestions in Making Cake.—It is very desirable that the materials be of the finest quality. Sweet, fresh butter, eggs, and good flour are the first essentials. The process of putting together is also quite an important feature, and where other methods are not given in this work by contributors, it would be well for the young housekeeper to observe the following directions:

Never allow the butter to oil, but soften it by putting in a moderately warm place before you commence other preparations for your cake; then put it into an earthen dish—tin, if not new, will discolor your cake as you stir it—and add your sugar; beat the butter and sugar to a cream, add the yolks of the eggs, then the milk, and lastly the beaten whites of the eggs and flour. Spices and liquors may be added after the yolks of the eggs are put in, and fruit should be put in with the flour.

The oven should be pretty hot for small cakes, and moderate for larger. To ascertain if a large cake is sufficiently baked, pierce it with a broom-straw through the center; if done, the straw will come out free from dough; if not done, dough will adhere to the straw. Take it out of the tin about fifteen minutes after it is taken from the oven (not sooner), and do not turn it over on the top to cool.

Frosting.—One pint granulated sugar, moisten thoroughly with water sufficient to dissolve it when heated; let it boil until it threads from the spoon, stirring often; while the sugar is boiling, beat the whites of two eggs till they are firm; then when thoroughly beaten, turn them into a deep dish, and when the sugar is boiled, turn it over the whites, beating all rapidly together until of the right consistency to spread over the cake. Flavor with lemon, if preferred. This is sufficient for two loaves.

Frosting, for Cake.—One cup frosting-sugar, two tablespoons of water boiled together; take it off the stove, and stir in the white of one egg beaten to a stiff froth; stir all together well, then frost your cake with it, and you will never want a nicer frosting than this.

Chocolate Frosting.—Whites of two eggs, one and one-half cups of fine sugar, six great spoons of grated chocolate, two teaspoons of vanilla; spread rather thickly between layers and on top of cake. Best when freshly made. It should be made like any frosting.

Icing.—The following rules should be observed where boiled icing is not used:

Put the whites of your eggs in a shallow earthern dish, and allow at least a quarter of a pound or sixteen tablespoons of the finest white sugar for each egg. Take part of the sugar at first and sprinkle over the eggs; beat them for about half an hour, stirring in gradually the rest of the sugar; then add the flavor. If you use the juice of a lemon, allow more sugar. Tartaric and lemon-juice whitens icing. It may be shaded a pretty pink with strawberry-juice or cranberry syrup, or colored yellow by putting the juice and rind of a lemon in a thick muslin bag, and squeezing it hard into the egg and sugar.

If cake is well dredged with flour after baking, and then carefully wiped before the icing is put on, it will not run, and can be spread more smoothly. Put frosting on to the cake in large spoonfuls, commencing over the center; then spread it over the cake, using a large knife, dipping it occasionally in cold water. Dry the frosting on the cake in a cool, dry place.

Ice-Cream Icing, for White Cake.—Two cups pulverized white sugar, boiled to a thick syrup; add three teaspoons vanilla; when cold, add the whites of two eggs well beaten, and flavored with two teaspoons of citric acid.

Icing, for Cakes.—Take ten whites of eggs whipped to a stiff froth, with twenty large spoonfuls of orange-flower water. This is to be laid smoothly on the cakes after they are baked. Then return them to the oven for fifteen minutes to harden the icing.

Icing.—One pound pulverized sugar, pour over one tablespoon cold water, beat whites of three eggs a little, not to a stiff froth; add to the sugar and water, put in a deep bowl, place in a vessel of boiling water, and heat. It will become thin and clear, afterward begin to thicken. When it becomes quite thick, remove from the fire and stir while it becomes cool till thick enough to spread with a knife. This will frost several ordinary-sized cakes.

Almond Cake.—Take ten eggs, beaten separately, the yolks from the whites; beat the yolks with half a pound of white sugar; blanch a quarter of a pound of almonds by pouring hot water on them, and remove the skins; pound them in a mortar smooth; add three drops of oil of bitter almonds; and rose-water to prevent the oiling of the almonds. Stir this also into the eggs. Half a pound of sifted flour stirred very slowly into the eggs; lastly, stir in the whites, which must have been whipped to a stiff froth. Pour this into the pans, and bake immediately three-quarters of an hour.

Cocoanut Cake.—Whip the whites of ten eggs, grate two nice cocoanuts, and add them; sift one pound of white sugar into half a pound of sifted flour; stir this well; add a little rose-water to flavor; pour into pans, and bake three-fourths of an hour.

Cocoanut Drops.—One pound each grated cocoanut and sugar; four well beaten eggs; four tablespoonfuls of flour, mix well, drop on pan, and bake.

Cocoanut Jumbles.—Take one cup butter, two cups sugar, three eggs well whipped, one grated cocoanut, stirred in lightly with the flour, which must be sufficient to stiffen to the required consistency. Bake one to know when enough flour is added.

Coffee Cake.—Take three eggs, two cups brown sugar, one cup strong coffee, quarter of cup of butter, three cups flour, one teaspoonful cream tartar, half teaspoonful each soda and ground cinnamon and cloves, half a nutmeg grated, one cup of raisins, stoned; beat butter and sugar to a cream, then add eggs beaten, coffee, flour sifted, and cream tartar, well mixed with it. Spices and raisins, then soda dissolved in sufficient warm water to absorb it. Thoroughly mix, and bake in round tins.

Cookies.—Two cups bright brown sugar, one cup butter, half cup sweet milk, two eggs, one teaspoonful soda, flour enough to roll out.

Composition Cake.—Five eggs, three cups sugar, two cups butter, five cups flour, one wine-glass brandy, one nutmeg grated, half pound each raisins and currants, three teaspoonfuls Gillett's baking powder.

Corn Starch Cake.—Two cups pulverized sugar, one cup butter, cup corn starch, two cups sifted flour, seven eggs (whites beaten very light), one teaspoon soda, two teaspoons cream tartar (or two teaspoons baking powder instead of soda and cream tartar), flavor with lemon. In putting this together, beat butter and sugar to a light cream, dissolve corn starch in a cup of sweet milk, leaving enough of the milk to dissolve the soda if it is used, put cream of tartar or baking powder in the flour, beat the whites of the eggs separate when the butter and sugar are ready, put all the ingredients together first, leaving the eggs and flour to the last.

Cream Cake.—Half pint cream, one tablespoon butter rubbed into one tablespoon flour. Put the cream on the fire. When it boils stir in the butter and flour mixed, add half a tea cup sugar, two eggs very light, flavor with vanilla. Spread between cakes, and frost or sugar top of cake to please fancy.

Cinnamon Cake.—Take two cups of brown sugar, one cup of butter, three-quarters cup of milk, half cup of vinegar, four eggs, large tablespoon of cinnamon, four cups of flour, one teaspoon of soda, two teaspoons cream tartar, mix all but vinegar and soda, then add vinegar, then soda, bake in large tin or patty pans.

Currant Cake.—Take two pounds of flour, half a pound of butter rubbed in the flour, half a pound of moist sugar, a few caraway seeds, three or four tablespoonfuls of yeast, and a pint of milk made a little warm. Mix all together, and let it stand an hour or two at the fire to rise; then beat it up with three eggs and a half pound of

currants. Put it into a tin, and bake two hours in a moderate oven.

Cup Cake.—Cream half a cup of butter, and four cups of sugar by beating; stir in five well-beaten eggs; dissolve one teaspoonful of soda in a cup of good milk or cream, and six cups of sifted flour; stir all well together, and bake in tins.

Delicate Cake.—Mix two cups of sugar, four of flour, half cup butter, half cup sweet milk, the whites of seven eggs, two teaspoons cream tartar, one teaspoon soda, rub the cream tartar in the flour and other ingredients, and flavor to suit the taste.

Delicious Swiss Cake.—Beat the yolks of five eggs and one pound of sifted loaf sugar well together; then sift in one pound of best flour, and a large spoonful of anise seed; beat these together for twenty minutes; then whip to a stiff froth the five whites, and add them; beat all well; then roll out the paste an inch thick, and cut them with a molded cutter rather small; set them aside till the next morning to bake. Rub the tins on which they are baked with yellow wax; it is necessary to warm the tins to receive the wax; then let them become cool, wipe them, and lay on the cakes. Bake a light brown.

Doughnuts.—One and a half cup of sugar; half cup sour milk, two teaspoons soda, little nutmeg, four eggs, flour enough to roll out.

Drop Cake.—To one pint cream, three eggs, one pinch of salt, thicken with rye till a spoon will stand upright in it, then drop on a well buttered iron pan which must be hot in the oven.

Drop Cookies.—Whites of two eggs, one large cup of milk, one cup of sugar, one-half cup of butter, two teaspoonfuls baking-powder, flavor with vanilla, rose, or nutmeg; flour enough for thick batter, beat thoroughly, drop in buttered pans, dust granulated sugar on top, and bake with dispatch.

Fruit Cake.—Take one pint each of sour milk and sugar, two eggs, half pint melted butter, two teaspoons even full of soda, dissolve in milk flour enough to roll out into shape, and fry in hot lard.

Fried Cakes.—Three eggs, one cup of sugar, one pint of new milk, salt, nutmeg, and flour enough to permit the spoon to stand upright in the mixture; add two teaspoonfuls of Gillett's baking powder and beat until very light. Drop by the dessert-spoonful into boiling lard. These will not absorb a bit of fat, and are the least pernicious of the doughnut family.

Fruit Cake.—Take four pounds of brown sugar, four pounds of good butter, beaten to cream; put four pounds of sifted flour into a pan; whip thirty-two eggs to a fine froth, and add to the creamed butter and sugar; then take six pounds of cleaned currants, four pounds of stoned rasins, two pounds of cut citron, one pound of blanched almonds, crushed, but not pounded, to a paste—a large cup of molasses, two large spoonfuls of ground ginger, half an ounce of pounded mace, half an ounce of grated nutmeg, half an ounce of pounded and sifted cloves, and one of cinnamon. Mix these well together, then add four large wineglasses of good French brandy, and lastly, stir in the flour; beat this well, put it all into a stone jar, cover very closely, for twelve hours; then make into six loaves, and bake in iron pans. These cakes will keep a year, if attention is paid to their being put in a tin case, and covered lightly in an airy place. They improve by keeping.

Ginger Drop Cake.—Cup each sugar, molasses, lard and boiling water, one teaspoon soda, half teaspoon cream tartar, stir in flour until it is as thick as cake, add sugar and salt.

Ginger Snaps.—Take one cup each of sugar, molasses, butter, half cup sour milk, two teaspoons cream tartar, one teaspoon soda, flour enough to roll out, cut into size desired and bake.

Ginger Snaps.—Two cups of New Orleans molasses, one cup of sugar, one of butter, one teaspoonful of soda, one of cloves, one of black pepper, and two tablespoons of ginger. These will keep good a month if you wish to keep them.

Graham Cakes.—Half a cup of butter, one-half cup sugar, one egg, one teacup sour milk, one-half teaspoon soda. Make a stiff batter by adding graham flour.

Good Graham Cakes.—Two cups sweet milk, one cup sweet cream, the white of one egg beaten to froth, half a spoonful of salt, dessert spoonful baking powder, stir in stiffened graham flour until quite thick, bake in muffin-rings or gem-tins, until well browned on top.

Indian Breakfast Patties.—To one pint of Indian meal add one egg, and a little salt, pour boiling water upon it, and fry brown immediately in pork fat. Cut open and put butter between, and send to the table hot.

Jumbles.—Stir together till of a light brown color, one pound sugar, one-half pound butter, then add eight eggs beaten to a froth, add flour enough to make them stiff enough to roll out, flavor with lemon, cut in rings half an inch thick, bake in quick oven.

Kisses.—Beat the whites of four eggs to a froth, stir into them half pound powdered white sugar; flavor with lemon, continue to beat it until it will be in a heap; lay the mixture on letter-paper, in the size and shape of half an egg, an inch apart, then lay the paper on hard wood and place in the oven without closing it, when they begin to look yellowish take them out and let them cool three or four minutes, then slip a thin knife carefully under and turn them into your left hand, take another and join the two by the sides next the paper, then lay them in a dish handling them gently. They may be batted a little harder, the soft inside taken out and jelly substituted.

Light Fruit Cake.—Take one cup butter, two cups sugar, four of flour, four eggs, one teaspoon cream tartar, half teaspoon soda, one cup sweet milk, one pound currants, half pound citron.

Marble Cake, Light Part.—One and a half cups white sugar, half cup butter, half cup sweet milk, one teaspoon cream tartar, half teaspoon soda, whites of four eggs, two and half cups flour.

Dark Part.—One cup brown sugar, half cup each molasses, butter and sour milk, one teaspoon cream tartar, one teaspoon soda, two and a half cups flour, yolks four eggs, half teaspoon cloves, allspice and cinnamon.

Molasses Cookies.—Three cups New Orleans molasses, one cup butter, one-half cup lard, one heaped teaspoon soda, one tablespoon ginger, one cup hot water. Roll thick. Better after standing.

Muffins.—Take two cups flour, one cup milk, half cup sugar, four eggs, one-half teaspoon each of soda and cream tartar, one tablespoon butter. Bake in rings.

Graham Muffins.—Mix one pint sweet milk, sift your flour, then take half pound each Graham and wheat flour, five or six spoonfuls melted butter, two half spoons baking powder. Bake in rings in very quick oven.

Nut Cake.—Mix each two tablespoons of butter and sugar, two eggs, one cup milk, three cups flour, one teaspoon cream tartar, half teaspoon soda, pint of nuts or almonds. Nuts may be sliced or not as suits taste.

Oat Cakes.—Mix fine and coarse oatmeal in equal proportions; add sugar, caraway-seeds, a dust of salt to three pounds of meal, a heaping teaspoonful of carbonate of soda; mix all thoroughly together, then add enough boiling water to make the whole a stiff paste; roll out this paste quite thin, and sprinkle meal on a griddle. Lay the cakes on to bake, or toast them quite dry in a Dutch oven in front of the fire; they should not scorch, but gradually dry through.

Orange Cake, the Most Delicate and Delicious Cake there is.—Grated rind of one orange; two cups sugar; whites of four eggs and yolks of five; one cup sweet milk; one cup butter; two large teaspoonfuls baking powder, to be sifted through with the flour; bake quick in jelly tins. Filling: Take white of the one egg that was left; beat to a froth, add a little sugar and the juice of the orange, beat together, and spread between the layers. If oranges are not to be had, lemons will do instead.

Plain Fruit Cake.—One pound each butter beaten to a cream, sifted sugar, sifted flour, twelve eggs, whites and yolks, beaten separately. Two pounds currants, three pounds of stoned raisins chopped, one nutmeg, a little cinnamon and other spices, half pint wine and brandy mixed, one pound citron cut in slices and stuck in the batter after it is in the tin. Bake slowly two to three hours.

Plain Cake.—Flour, three-quarters of a pound; sugar, the same quantity; butter, four ounces; one egg and two tablespoonfuls of milk. Mix all together and bake.

Puffs.—Two eggs beaten very light; one cup of milk, one cup of flour, and a pinch of salt. The gems should be heated while making the puffs, which are then placed in a quick oven.

Plum Cake.—Six eggs well beaten, one pound of sugar, the same of flour, butter and currants, four ounces of candied peel, two tablespoonfuls of mixed spice. When it is all mixed, add one teaspoonful of carbonate of soda, and one of tartaric acid. Beat it all up quickly and bake directly.

Pound Cake.—Take four and a half cups flour, 3 cups each butter and sugar. Ten eggs, yolks and whites beaten separately. Mix.

Pork Cake.—Take one pound salt pork chopped fine, boil a few minutes in half pint water, one cup molasses, two cups sugar, three eggs, two teaspoons soda, cinnamon, cloves, nutmeg to taste, one pound raisins chopped fine, flour to make a stiff batter.

Rich Shortbread.—Two pounds of flour, one pound butter, and quarter pound each of the following ingredients:—Candied orange and lemon peel, sifted loaf sugar, blanched sweet almonds and caraway comfits. Cut the peel and almonds into thin slices, and mix them with one pound and a half of flour and the sugar. Melt the butter, and when cool, pour it into the flour, mixing it quickly with a spoon. Then with the hands mix it, working in the remainder of the flour; give it one roll out till it is an inch thick, cut it into the size you wish, and pinch round the edges. Prick the top with a fork, and stick in some caraway comfits; put it on white paper, and bake on tins in a slow oven.

Seed Cake.—Take half a pound of butter and three-fourths of a pound of sugar, creamed; three eggs, beaten lightly, and two tablespoonfuls of picked and bruised caraway seed; dissolve half a teaspoonful of soda in a cup of new milk; mix these well together until they are about the consistency of cream; then sift in two pounds of flour, mix well with a knife, and roll them out into thin cakes, about an inch in thickness. Bake in a quick oven.

Sponge Cake.—Take sixteen eggs; separate the whites from the yolks; beat them very lightly; sift into the yolks one pound of flour, adding a few drops of essence of almond or lemon, to flavor with; then add one pound and a quarter of pulverized loaf sugar; beat this well with a knife; then add the whites whipped to a stiff froth. Have ready the pans, and bake.

Sponge Cake, white.—One and one-third coffee cups of sugar; one coffee cup flour; whites of ten eggs; beat eggs and sugar as if for frosting; add flour by degrees and bake.

Snow Cake.—Take one pound arrow-root, half pound white sugar, half pound butter, the whites of six eggs, flavor with lemon, beat the butter to a cream, stir in the sugar and arrow-root, whisk the whites of the eggs to a stiff froth, beat for twenty minutes. Bake one hour.

Washington Cake.—One cup of sugar; ½ cup of butter; ½ cup sweet milk; 2 eggs; 2 cups flour; 2 teaspoons baking powder. Bake in layers as jelly cake. Jelly part: One pint of grated apples; 1 egg; 1 cup of sugar; grated rind and juice of one lemon; put in a vessel of some kind, and boil; put it on the cakes hot.

Waffles.—Take one quart milk, two eggs; beat the whites and yolks separately; four tablespoons melted butter, two teaspoons Gillett's baking powder, flour to make a stiff batter. Bake in waffle irons.

Alpine Snow.—Wash cup of rice, cook till tender in a covered dish to keep it white, when nearly done add cup rich milk, salt to taste, stir in the beaten yolks of two eggs, allow it to simmer for a moment, then place in a dish, beat the whites in two tablespoons fine sugar. Put the rice in little heaps upon the tin, intermingling with pieces of red jelly, eat with fine sugar and cream.

Apple Charlotte.—Take two pounds of apples, pare and core and slice them into a pan and add one pound loaf sugar, juice of three lemons and the grated rind of one, let these boil until they become a thick mass. Turn into a mould and serve it cold with thick custard or cream.

Apple Cream.—One cup thick cream, one cup sugar, beat till very smooth; then beat the whites of two eggs and add; stew apples in water till soft; take them from the water with a fork; steam them if you prefer. Pour the cream over the apples when cold.

Apple Custard.—Pare tart apples, core them, put them into a deep dish with a small piece of butter, and one teaspoon of sugar and a little nutmeg, in the opening of each apple, pour in water enough to cook them, when soft cool them and pour over an unbaked custard so as to cover them and bake until the custard is done.

Apple Fancy.—Pare and core apples, stew with sugar and lemon peels, beat four eggs to a froth, add a cupful of grated bread crumbs, a little sugar and nutmeg, lay the apples in the bottom of a dish and cover with the bread crumbs, laying a few pieces of butter over the top, bake in a quick oven, when done turn out upside down on a flat dish, scatter fine sugar over the top of apples, boil potatoes and beat fine with cream, large piece butter and salt, drop on tin, make smooth on top, score with knife, lay a thin slice of butter on top, then put in oven till brown.

Apple Fritters.—One pint milk, three eggs, salt to taste, as much flour as will make a batter, beat yolks and whites of eggs separately, add yolks to milk, stir in the whites when mixing the batter, have tender apples, pare, core, and cut in large thin slices, around the apple, to be fried in hot lard, ladle batter into spider, lay slice of apple in centre of each quantity of batter, fry light brown.

Apple Snow Balls.—Pare six apples, cut them into quarters, remove the cores, reconstruct the position of the apples, introduce into the cavities one clove and a slice of

lemon peel, have six small pudding cloths at hand and cover the apples severally in an upright position with rice, tying them up tight, then place them in a large saucepan of scalding water and boil one hour, on taking them up open the top and add a little grated nutmeg with butter and sugar.

Arrow-Root Blanc-Mange.—Put two tablespoonfuls of arrow-root to a quart of milk, and a pinch of salt. Scald the milk, sweeten it, and stir in the arrow-root, which must first be wet up with some of the milk. Boil up once. Orange-water, rose-water or lemon-peel may be used to flavor it. Pour into molds to cool.

Arrow-Root Custard.—Arrow-root, one tablespoonful; milk, 1 pint; sugar, 1 tablespoonful, and 1 egg. Mix the arrow-root with a little of the milk, cold; when the milk boils, stir in the arrow-root, egg and sugar, previously well beaten together. Let it scald, and pour into cups to cool. To flavor it, boil a little ground cinnamon in the milk.

Arrow-Root Jelly.—To a dessert-spoonful of the powder, add as much cold water as will make it into a paste, then pour on half a pint of boiling water, stir briskly and boil it a few minutes, when it will become a clear smooth jelly; a little sugar and sherry wine may be added for debilitated adults; but for infants, a drop or two of essence of caraway seeds or cinnamon is preferable, wine being very liable to become acid in the stomachs of infants, and to disorder the bowels. Fresh milk, either alone or diluted with water, may be substituted for the water.

Baked Apples.—Take a dozen tart apples, pare and core them, place sugar and small lump of butter in centre of each, put them in a pan with half pint of water, bake until tender, basting occasionally with syrup while baking, when done, serve with cream.

Chocolate Cream Custard.—Scrape quarter pound chocolate, pour on it one teacup boiling water, and stand it by fire until dissolved, beat eight eggs light, omitting the whites of two, and stir them by degrees into a quart of milk alternately with the chocolate and three tablespoons of white sugar, put the mixture into cups and bake 10 minutes.

Charlotte Russe.—Whip one quart rich cream to a stiff froth, and drain well on a nice sieve. To one scant pint of milk add six eggs beaten very light; make very sweet; flavor high with vanilla. Cook over hot water till it is a thick custard. Soak one full ounce Coxe's gelatine in a very little water, and warm over hot water. When the custard is very cold, beat in lightly the gelatine and the whipped cream. Line the bottom of your mold with buttered paper, and the sides with sponge cake or lady-fingers fastened together with the white of an egg. Fill with the cream, put in a cold place or in summer on ice. To turn out dip the mold for a moment in hot water. In draining the whipped cream, all that drips through can be re-whipped.

Cocoa Snow.—Grate the white part of a cocoanut and mix it with white sugar, serve with whipped cream, or not, as desired.

Cream and Snow.—Make a rich boiled custard, and put it in the bottom of a dish; take the whites of eight eggs, beat with rose-water, and a spoonful of fine sugar, till it be a strong froth; put some milk and water into a stew-pan; when it boils take the froth off the eggs, and lay it on the milk and water; boil up once; take off carefully and lay it on the custard.

Baked Custards.—Boil a pint of cream with some mace and cinnamon; and when it is cold, take four yolks and two whites of eggs, a little rose and orange-flower water, sack, nutmeg, and sugar to your palate. Mix them well, and bake it in cups.

Or, pour into a deep dish, with or without lining or rim of paste; grate nutmeg and lemon peel over the top, and bake in a slow oven about thirty minutes.

Gooseberry Cream.—Boil them in milk till soft; beat them, and strain the pulp through a coarse sieve. Sweeten cream with sugar to your taste; mix with the pulp; when cold, place in glasses for use.

Imperial Cream.—Boil a quart of cream with the thin rind of a lemon; stir till nearly cold; have ready in a dish to serve in, the juice of three lemons strained with as much sugar as will sweeten the cream; pour it into the dish from a large tea-pot, holding it high, and moving it about to mix with the juice. It should be made from 6 to 12 hours before it is served.

Jumballs.—Flour, 1 lb.; sugar, 1 lb.; make into a light paste with whites of eggs beaten fine; add ½ pint of cream; ½ lb. of butter, melted; and 1 lb. of blanched almonds, well beaten; knead all together, with a little rose-water; cut into any form; bake in a slow oven. A little butter may be melted with a spoonful of white wine and throw fine sugar over the dish.

Lemon Puffs.—Beat and sift 1 pound of refined sugar; put into a bowl, with the juice of two lemons, and mix them together; beat the white of an egg to a high froth; put it into the bowl; put in 3 eggs with two rinds of lemon grated; mix it well up, and throw sugar on the buttered papers; drop on the puffs in small drops, and bake them in a moderately heated oven.

Lemon Tarts.—Pare the rinds of four lemons, and boil tender in two waters, and beat fine. Add to it 4 ounces of blanched almonds, cut thin, 4 ozs. of lump sugar, the juice of the lemons, and a little grated peel. Simmer to a syrup. When cold, turn into a shallow tin tart dish, lined with a rich thin puff paste, and lay bars of the same over, and bake carefully.

Macaroons.—Blanch 4 ozs. of almonds, and pound with 4 spoonfuls of orange-flower water; whisk the whites of four eggs to a froth, then mix it, and 1 lb. of sugar, sifted with the almonds to a paste; and laying a sheet of wafer-paper on a tin, put it on in different little cakes, the shape of macaroons.

Oatmeal Custard.—Take two teaspoons of the finest Scotch oatmeal, beat it up into a sufficiency of cold water in a basin to allow it to run freely. Add to it the yoke of a fresh egg, well worked up; have a pint of scalding new milk on the fire, and pour the oatmeal mixture into it, stirring it round with a spoon so as to incorporate the whole. Add sugar to your taste, and throw in a glass of sherry to the mixture, with a little grated nutmeg. Pour it into a basin, and take it warm in bed. It will be found very grateful and soothing in cases of colds or chills. Some persons scald a little cinnamon in the milk they use for the occasion.

Orange Crumpets.—Cream, 1 pint; new milk, 1 pint; warm it, and put in it a little rennet or citric acid; when broken, stir it gently; lay it on a cloth to drain all night, and then take the rinds of three oranges, boiled, as for preserving, in three different waters; pound them very fine, and mix them with the curd, and eight eggs in a mortar, a little nutmeg, the juice of a lemon or orange, and sugar to your taste; bake them in buttered tin pans. When baked put a little wine and sugar over them.

Orange Custards.—Boil the rind of half a Seville orange very tender; beat it very fine in a mortar; add a spoonful of the best brandy, the juice of a Seville orange, 4 ozs. loaf sugar, and the yolks of four eggs; beat all

together ten minutes; then pour in gradually a pint of boiling cream; keep beating them until they are cold; put them into custard cups, and set them in an earthen dish of hot water; let them stand until they are set, take out, and stick preserved oranges on the top, and serve them hot or cold.

Pommes Au Riz.—Peel a number of apples of a good sort, take out the cores, and let them simmer in a syrup of clarified sugar, with a little lemon peel. Wash and pick some rice, and cook it in milk, moistening it therewith little by little, so that the grains may remain whole. Sweeten it to taste; add a little salt and a taste of lemon-peel. Spread the rice upon a dish, mixing some apple preserve with it, and place the apples upon it, and fill up the vacancies between the apples with some of the rice. Place the dish in the oven until the surface gets brown, and garnish with spoonfuls of bright colored preserve or jelly.

Raspberry Cream.—Mash the fruit gently, and let it drain; then sprinkle a little sugar over, and that will produce more juice; put it through a hair sieve to take out the seeds; then put the juice to some cream, and sweeten it; after which, if you choose to lower it with some milk, it will not curdle; which it would if put to the milk before the cream; but it is best made of raspberry jelly, instead of jam, when the fresh fruit cannot be obtained.

Rice Fritters.—One pint of cooked rice, half cup of sweet milk, two eggs, a tablespoon of flour, and a little salt. Have the lard hot in the skillet, allow a tablespoon to each fritter, fry brown on each side, then turn same as griddle cakes. If you find the rice spatters in the fat, add a very little more flour. You can judge after frying one.

Rice Croquettes.—Make little balls or oblong rolls of cooked rice; season with salt, and pepper if you like; dip in egg; fry in hot lard.

Rice Custards.—Boil 3 pints of new milk with a bit of lemon-peel, cinnamon, and three bay leaves; sweeten; then mix a large spoonful of rice flour into a cup of cold milk, very smooth; mix it with the yolks of four eggs well beaten. Take a basin of the boiling milk, and mix with the cold that has the rice in it; add the remainder of the boiling milk; stir it one way till it boils; pour immediately into a pan; stir till cool, and add a spoonful of brandy, or orange-flower water.

Rice Flummery.—Boil with a pint of new milk, a bit of lemon-peel, and cinnamon; mix with a little cold milk, as much rice flour as will make the whole of a good consistence, sweeten and add a spoonful of peach-water, or a bitter almond beaten; boil it, observing it does not burn; pour it into a shape or a pint basin, taken out the spice. When cold, turn the flummery into a dish, and serve with cream, milk, or custard round; or put a teacupful of cream into half a pint of new milk, a glass of white wine, half a lemon squeezed, and sugar.

Rock Cream.—Boil a teacupful of rice till quite soft in new milk and then sweeten it with sugar, and pile it on a dish, lay on it current jelly or preserved fruit, beat up the whites of five eggs with a little powdered sugar and flour, add to this when beaten very stiff about a tablespoon of rich cream and drop it over the rice.

Strawberry and Apple Souffle.—Stew the apple with a little lemon-peel; sweeten them, then lay them pretty high round the inside of a dish. Make a custard of the yolks of two eggs, a little cinnamon, sugar and milk. Let it thicken over a slow fire, but not boil; when ready, pour it in the inside of the apple. Beat the whites of the eggs to a strong froth, and cover the whole. Throw over it a good deal of pounded sugar, and brown it to a fine brown. Any fruit made of a proper consistence does for the walls, strawberries, when ripe, are delicious.

Strawberry Short-Cake.—First prepare the berries by picking; after they have been well washed—the best way to wash them is to hold the boxes under the faucet and let a gentle stream of water run over and through them, then drain, and pick them into an earthen bowl; now take the potato-masher and bruise them and cover with a thick layer of white sugar; now set them aside till the cake is made. Take a quart of sifted flour; half a cup of sweet butter; one egg, well beaten; three teaspoonfuls of baking-powder, and milk enough to make a rather stiff dough; knead well, and roll with a rolling-pin till about one inch thick; bake till a nice brown, and when done, remove it to the table; turn it out of the pan; with a light, sharp knife, cut it down lengthwise and crossways; now run the knife through it, and lay it open for a few moments, just to let the steam escape (the steam ruins the color of the berries); then set the bottom crust on the platter; cover thickly with the berries, an inch and a half deep; lay the top crust on the fruit; dust thickly with powdered sugar, and if any berry juice is left in the bowl, pour it round the cake, not over it, and you will have a delicious short-cake.

Snow Cream.—To a quart of cream add the whites of three eggs, cut to a stiff froth, add four spoonfuls of sweet wine, sugar to taste, flavor with essence of lemon. Whip all to a froth, and as soon as it forms take it off and serve in glasses.

Stewed Figs.—Take four ounces of fine sugar, the thin rind of a large lemon, and a pint of cold water, when the sugar is dissolved, add one pound turkey figs, and place the stew-pan over a moderate fire where they may heat and swell slowly and stew gently for two hours, when they are quite tender, add the juice of one lemon, arrange them in a glass dish and serve cold.

Spanish Cream.—Dissolve in ½ pint of rose-water, 1 oz. of isinglass cut small; run it through a hair sieve; add the yolks of three or four eggs, beaten and mixed with half a pint of cream, and two sorrel leaves. Pour it into a deep dish, sweeten with loaf sugar powdered. Stir it till cold, and put it into molds. Lay rings round in different colored sweetmeats. Add, if you like, a little sherry, and a lump or two of sugar, rubbed well upon the rind of a lemon to extract the flavor.

Whipped Cream.—To one quart of good cream, put a few drops of bergamot water, a little orange-flower water, and ½ lb. of sugar. When it is dissolved, whip the cream to a froth, and take it up with a skimmer; drain on a sieve, and if for icing, let it settle half an hour before you put it into cups or glasses. Use that which drops into the dish under the sieve, to make it froth the better, adding two whites of eggs. Colored powdered sugar may, if you like, be sprinkled on the top of each.

Asparagus Omelet.—Boil a dozen of the largest and finest asparagus heads you can pick; cut off all the green portion, and chop it in thin slices; season with a small teaspoonful of salt, and about one-fourth of that quantity of soluble cayenne. Then beat up six eggs in a sufficient quantity of new milk to make a stiffish batter. Melt in the frying-pan a quarter of a pound of good, clean dripping, and just before you pour on the batter place a small piece of butter in the center of the pan. When the dripping is quite hot, pour on half your batter, and as it begins to set, place on it the asparagus tops, and cover over with the remainder. This omelet is generally served on a round of buttered toast, with the crusts removed. The batter is richer if made of cream.

Buttered Eggs.—Beat four or five eggs, yolks and whites together, put a quarter of a pound of butter in a basin, and then put that in boiling water, stir it till

melted, then pour the butter and the eggs into a sauce-pan ; keep a basin in your hand, just hold the sauce-pan in the other over a slow part of the fire, shaking it one way, as it begins to warm; pour it into a basin, and back, then hold it again over the fire, stirring it constantly in the saucepan, and pouring it into the basin, more perfectly to mix the egg and butter until they shall be hot without boiling.

Serve on toasted bread ; or in a basin, to eat with salt fish, or red herrings.

Corn-Oysters.—Take a half dozen ears of sweet corn (those which are not too old); with a sharp knife split each row of the corn in the center of the kernel lengthwise ; scrape out all the pulp ; add one egg, well beaten, a little salt, one tablespoonful of sweet milk ; flour enough to make a pretty stiff batter. Drop in hot lard, and fry a delicate brown. If the corn is quite young, omit the milk, using as little flour as possible.

Cheese Omelet.—Mix to a smooth batter three tablespoonfuls of fine flour, with half a pint of milk. Beat up well the yolks and whites of four eggs, a little salt, and a quarter of a pound of grated old English cheese. Add these to the flour and milk, and whisk all the ingredients together for half an hour. Put three ounces of butter into a frying-pan, and when it is boiling pour in the above mixture, fry it for a few minutes, and then turn it carefully ; when it is sufficiently cooked on the other side, turn it on to a hot dish and serve.

Irish Stew.—Take a loin of mutton, cut it into chops, season it with a very little pepper and salt, put it into a saucepan, just cover it with water, and let it cook half an hour. Boil two dozen of potatoes, peel and mash them, and stir in a cup of cream while they are hot ; then line a deep dish with the potatoes, and lay in the cooked mutton chops, and cover them over with the rest of the potatoes ; then set it in the oven to bake. Make some gravy of the broth in which the chops were cooked. This is a very nice dish.

Irish Stew.—Cut off the fat of part of a loin of mutton, and cut it into chops. Pare, wash, and slice very thin some potatoes, two onions, and two small carrots ; season with pepper and salt. Cover with water in a stew-pan, and stew gently till the meat is tender, and the potatoes are dissolved in the gravy. It may be made of beef-steaks, or mutton and beef mixed.

Macaroni, Dressed Sweet.—Boil 2 ozs. in a pint of milk, with a bit of lemon peel, and a good bit of cinnamon, till the pipes are swelled to their utmost size without breaking. Lay them on a custard-dish, and pour a custard over them hot. Serve cold.

Macaroni, as Usually Served.—Boil it in milk, or a weak veal broth, flavored with salt. When tender, put it into a dish without the liquor, with bits of butter and grated cheese, and over the top grate more, and put a little more butter. Put the dish into a Dutch oven, a quarter of an hour, and do not let the top become hard.

Omelet.—Six eggs beaten separately, beaten hard, two teaspoons of corn starch, two tablespoons milk, whites of eggs, put in slow at last. Fry in butter.

Rumbled Eggs.—This is very convenient for invalids, or a light dish for supper. Beat up three eggs with two ounces of fresh butter, or well-washed salt butter ; add a teaspoonful of cream or new milk. Put all in a saucepan and keep stirring it over the fire for nearly five minutes, until it rises up like scuffle, when it should be immediately dished on buttered toast.

Poached Eggs.—Break an egg into a cup, and put it gently into boiling water ; and when the white looks quite set, which will be in about three or four minutes, take it up with an egg slice, and lay it on toast and butter, or spinach. Serve them hot ; if fresh laid, they will poach well, without breaking.

Savory Potato-Cakes.—Quarter of a pound of grated ham, one pound of mashed potatoes, and a little suet, mixed with the yolks of two eggs, pepper, salt and nutmeg. Roll it into little balls, or cakes, and fry it a light brown. Sweet herbs may be used in place of ham. Plain potato cakes are made with potatoes and eggs only.

Tomato Toast.—Remove the stem and all the seeds from the tomatoes ; they must be ripe, mind, not *over ripe ;* stew them to a pulp, season with butter, pepper and salt ; toast some bread (not new bread), butter it, and then spread the tomato on each side, and send it up to table, two slices on each dish, the slices cut in two ; and the person who helps it must serve with two half-slices, not attempt to lift the top slice, otherwise the appearance of the under slice will be destroyed.

HOW TO COOK FISH . .

OF DIFFERENT KINDS

How to Choose Anchovies.—They are preserved in barrels, with bay-salt ; no other fish has the fine flavor of the anchovy. The best look red and mellow, and the bones moist and oily ; the flesh should be high flavored, the liquor reddish, and have a fine smell.

Baked Black Bass.—Eight good-sized onions chopped fine ; half that quantity of bread crumbs ; butter size of hen's egg ; plenty of pepper and salt ; mix thoroughly with anchovy sauce until quite red. Stuff your fish with this compound and pour the rest over it, previously sprinkling it with a little red pepper. Shad, pickerel and trout are good the same way. Tomatoes can be used instead of anchovies, and are more economical. If using them, take pork in place of butter, and chop fine.

Boiled White Fish.—Lay the fish open ; put it in a dripping pan with the back down ; nearly cover with water ; to one fish put two tablespoons salt, cover tightly and simmer (not boil) one-half hour ; dress with gravy, butter and pepper ; garnish with sliced eggs.

For sauce use a piece of butter the size of an egg, one tablespoon of flour, one half pint boiling water ; boil a few minutes, and add three hard boiled eggs, sliced.

Fresh Broiled White Fish.—Wash and drain the fish: sprinkle with pepper and lay with the inside down upon the gridiron, and broil over fresh bright coals, When a nice brown, turn for a moment on the other side. then take up and spread with butter. This is a very nice way of broiling all kinds of fish, fresh or salted. A little smoke under the fish adds to its flavor. This may be made by putting two or three cobs under the gridiron.

To Boil Codfish.—If boiled fresh, it is watery; but it is excellent if salted, and hung for a day, to give it firmness. Wash and clean the fish well, and rub salt inside of it; tie it up, and put it on the fire in cold water; throw a handful of salt into the fish-kettle. Boil a small fish 15 minutes; a large one 30 minutes. Serve it without the smallest speck and scum; drain. Garnish it with lemon, horse-radish, the milt, roe, and liver. Oyster or shrimp sauce may be used.

Chowder.—Five pounds of codfish cut in squares; fry plenty of salt pork cut in thin slices; put a layer of pork in your kettle, then one of fish; one of potatoes in thick slices, and one of onions in slices; plenty of pepper and

salt; repeat as long as your materials last, and finish with a layer of Boston crackers or crusts of bread. Water sufficient to cook with, or milk if you prefer. Cook one-half hour and turn over on your platter, disturbing as little as possible. Clams and eels the same way.

Clam Fritters.—Twelve clams chopped or not, one pint milk, three eggs, add liquor from clams; salt and pepper, and flour enough for thin batter. Fry in hot lard.

Clam Stew.—Lay the clams on a gridiron over hot coals, taking them out of the shell as soon as open, saving the juice; add a little hot water, pepper, a very little salt and butter rolled in flour sufficient for seasoning; cook for five minutes and pour over toast.

Eels, to Stew.—Of the above fish, that of the "silver" kind is preferable to its congener, and, therefore, ought to be procured for all cuisine purposes. Take from three to four pounds of these eels, and let the same be thoroughly cleansed, inside and out, rescinding the heads and tails from the bodies. Cut them into pieces three inches in length each, and lay them down in a stew pan, covering them with a sufficiency of sweet mutton gravy to keep them seething over a slow fire, when introduced into the pan, for twenty minutes. Add to the liquor, before you place your eels into it, a quarter of an ounce of whole black pepper, quarter of an ounce of allspice, with one or two pieces of white ginger. Thicken with a light admixture of flour and butter, stirring it carfully round, adding thereto, at the same time, one gill of good portwine, and half a gill of sweet ketchup. Lemon-peel and salt may be added in accordance with your taste.

How to Keep Fish Sound.—To prevent meat, fish, etc., going bad, put a few pieces of charcoal into the sauce-pan wherein the fish or flesh is to be boiled.

How to Render Boiled Fish Firm.—Add a little saltpetre to the salt in the water in which the fish is to be boiled; a quarter of an ounce to one gallon.

Fish Balls.—Bone, cooked fresh, or salt fish, add double the quantity of mashed potatoes, one beaten egg, a little butter, pepper and salt to taste. Make in cakes or balls; dredge with flour and fry in hot lard.

Potted Fish.—Take out the back-bone of the fish; for one weighing two pounds take a tablespoon of allspice and cloves mixed; these spices should be put into bags of not too thick muslin; put sufficient salt directly upon each fish; then roll in cloth, over which sprinkle a little cayenne pepper; put alternate layers of fish, spice and sago in an earthen jar; cover with the best cider vinegar; cover the jar closely with a plate and over this put a covering of dough, rolled out to twice the thickness of pie crust. Make the edges of paste, to adhere closely to the sides of the jar, so as to make it air-tight. Put the jar into a pot of cold water and let it boil from three to five hours, according to quantity. Ready when cold.

How to Broil or Roast Fresh Herrings.—Scale, gut and wash; cut off the heads; steep them in salt and vinegar ten minutes; dust them with flour, and broil them over or before the fire, or in the oven. Serve with melted butter and parsley.

Herrings are nice *jarred*, and done in the oven, with pepper, cloves, salt, a little vinegar, a few bay-leaves, and a little butter.

How to Fry Fresh Herrings.—Slice small onions, and lay in the pan with the herrings; add a little butter, and fry them. Perhaps it is better to fry the onions separately with a little parsley, and butter or drip.

How to Pot Herrings.—Clean, cut off the heads, and lay them close in an earthen pot. Strew a little salt between every layer; put in cloves, mace, whole pepper, cayenne and nutmeg; fill up the jar with vinegar, water, and a quarter of a pint of sherry, cover, tie down; bake in an oven, and when cold pot it for use. A few anchovies and bay leaves intermixed will improve the flavor much.

Buttered Lobsters.—Pick the meat out, cut it, and warm with a little brown gravy, nutmeg, salt, pepper and butter, with a little flour. If done white, a little white gravy and cream.

Curry of Lobster.—Take them from the shells, and lay into a pan, with a small piece of mace, three or four spoonfuls of veal gravy, and four of cream; rub smooth one or two teaspoonfuls of curry-powder, a teaspoonful of flour, and an ounce of butter, simmer an hour; squeeze half a lemon in, and add salt.

Lobster Chowder.—Four or five pounds of lobster, chopped fine; take the green part and add to it four pounded crackers; stir this into one quart of boiling milk; then add the lobster, a piece of butter one-half the size of an egg, a little pepper and salt, and bring it to a boil.

How to Boil Mackerel.—Rub them with vinegar; when the water boils, put them in with a little salt, and boil gently 15 minutes. Serve with fennel and parsley chopped, boil, and put into melted butter, and gooseberry sauce.

Salt Mackerel.—Soak the fish for a few hours in lukewarm water, changing the water several times; then put into cold water loosely tied in cloths, and let the fish come to a boil, turning off the water once, and pouring over the fish hot water from the tea-kettle; let this just come to a boil, then take them out and drain them, lay them on a platter, butter and pepper them, and place them for a few moments in the oven. Serve with sliced lemons, or with any fish sauce.

How to Fry Oysters.—Use the largest and best oysters; lay them in rows upon a clean cloth and press another upon them, to absorb the moisture; have ready several beaten eggs; and in another dish some finely crushed crackers: in the frying pan heat enough butter to entirely cover the oysters; dip the oysters first into the eggs, then into the crackers, rolling it or them over, that they may become well incrusted; drop into the frying pan and fry quickly to a light brown. Serve dry and let the dish be warm. A chafing dish is best.

Oyster Patties.—Make some rich puff paste and bake it in very small tin patty pans; when cool, turn them out upon a large dish; stew some large fresh oysters with a few cloves, and a little mace and nutmeg; then add the yolk of one egg, boiled hard and grated; add a little butter, and as much of the oyster liquor as will cover them. When they have stewed a little while, take them off the pan and set them to cool. When quite cold, lay two or three oysters in each shell of puff paste.

Oysters, Stewed.—In all cases, unless shell oysters, wash and drain; mix half a cup of butter and a tablespoon of corn starch; put with the oysters in a porcelain kettle; stir until they boil; add two cups of cream or milk; salt to taste; do not use the liquor of the oysters in either stewing or escaloping.

Oysters Stewed.—Scald the oysters in their own liquor, then take them out, beard them, and strain the liquor carefully from the grit. Put into a stewpan an ounce of butter, with sufficient flour dredged in to dry it up; add the oyster liquor, and a blade of pounded mace, a little cayenne, and a very little salt to taste; stir it well over a brisk fire with a wooden spoon, and when it comes to the boil, throw in your oysters, say a dozen and a half or a score, and a good tablespoonful of cream, or more, if you have it at hand. Shake the pan over the fire, and let it simmer for

one or two minutes, but not any longer, and do not let it boil, or the fish will harden. Serve in a hot dish, garnished with sippets of toasted bread. Some persons think that the flavor is improved by boiling a small piece of lemon-peel with the oyster liquor, taking it out, however, before the cream is added.

Oysters Scolloped.—Beard and trim your oysters, and strain the liquor. Melt in a stewpan, with a dredging of flour sufficient to dry it up, an ounce of butter, and two tablespoonfuls of white stock, and the same of cream; the strained liquor and pepper, and salt to taste. Put in the oysters and gradually heat them through, but be sure not to let them boil. Have your scallop-shells buttered, lay in the oysters, and as much liquid as they will hold; cover them well over with bread-crumbs, over which spread, or drop, some tiny bits of butter. Brown them in the oven, or before the fire, and serve while very hot.

Oysters, To Pickle.—Take two hundred of the plumpest, nicest oysters to be had, open them, saving the liquor, remove the beards, put them, with the liquor, into a stewpan, and let them simmer for twenty minutes over a very gentle fire, taking care to skim them well. Take the stewpan off the fire, take out the oysters, and strain the liquor through a fine cloth, returning the oysters to the stewpan. Add to a pint of the hot liquor half an ounce of mace, and half an ounce of cloves; give it a boil, and put it in with the oysters, stirring the spice well in amongst them. Then put in about a spoonful of salt, three-quarters of a pint of white-wine vinegar, and one ounce of whole pepper, and let the oysters stand until they are quite cold. They will be ready for use in about twelve or twenty-four hours; if to be kept longer they should be put in wide-mouthed botttles, or stone jars, and well drawn down with bladder. It is very important that they should be quite cold before they are put into the bottles, or jars.

Salmon, To Boil.—Clean it carefully, boil it gently with salt and a little horse radish; take it out of the water as soon as done. Let the water be warm if the fish be split. If underdone it is very unwholesome. Serve with shrimp, lobster, or anchovy sauce, and fennel and butter.

Salmon, To Marinate.—Cut the salmon in slices; take off the skin and take out the middle bone; cut each slice asunder; put into a saucepan and season with salt, pepper, 6 cloves, a sliced onion, some whole chives, a little sweet basil, parsley, and a bay leaf; then squeeze in the juice of three lemons, or use vinegar. Let the salmon lie in the marinate for two hours; take it out; dry with a cloth; dredge with flour, and fry brown in clarified butter; then lay a clean napkin in a dish; lay the slices upon it; garnish with fried parsley.

Salt Cod, To Dress.—Soak the cod all night in 2 parts water, and one part vinegar. Boil; and break into flakes on the dish; pour over it boiled parsnips, beaten in a mortar, and then boil up with cream, and a large piece of butter rolled in a bit of flour. It may be served with egg-sauce instead of parsnip, or boiled and served without flaking with the usual sauce.

All *Salt Fish* may be done in a similar way. Pour egg-sauce over it, or parsnips, boiled and beaten fine with butter and cream.

How to Boil Sturgeon—Water, 2 quarts; vinegar, 1 pint; a stick of horseradish; a little lemon-peel, salt, pepper, a bay leaf. In this boil the fish; when the fish is ready to leave the bones, take it up; melt ½ lb. of butter; add an anchovy, some mace, a few shrimps, good mushroom ketchup, and lemon juice; when it boils, put in the dish; serve with the sauce; garnish with fried oysters, horseradish and lemon.

How to Broil Sturgeon.—Cut slices, rub beaten eggs over them, and sprinkle them with crumbs of bread, parsley, pepper and salt; wrap them in white paper, and broil gently. Use for sauce, butter, anchovy and soy.

How to Dress Fresh Sturgeon.—Cut slices, rub egg over them, then sprinkle with crumbs of bread, parsley, pepper, salt; fold them in paper, and broil gently. Sauce; butter, anchovy and soy.

How to Roast Sturgeon.—Put a piece of butter, rolled in flour, into a stewpan with four cloves, a bunch of sweet herbs, two onions, some pepper and salt, half a pint of water and a glass of vinegar. Set it over the fire till hot; then let it become lukewarm, and steep the fish in it an hour or two. Butter a paper well, tie it round, and roast it without letting the spit run through. Serve with sorrel and anchovy sauce.

Trout, a-la-Genevoise—Clean the fish well; put it into the stewpan, adding half champagne and half sherry wine. Season it with pepper, salt, an onion, a few cloves stuck in it, and a small bunch of parsley and thyme; put in it a crust of French bread; set it on a quick fire. When done take the bread out, bruise it and thicken the sauce: add flour and a little butter, and boil it up. Lay the fish on the dish, and pour the sauce over it. Serve it with sliced lemon and fried bread.

How to Broil Trout—Wash, dry, tie it, to cause it to keep its shape; melt butter, add salt, and cover the trout with it. Broil it gradually in a Dutch oven, or in a common oven. Cut an anchovy small, and chop some capers. Melt some butter with a little flour, pepper, salt, nutmeg, and half a spoonful of vinegar. Pour it over the trout and serve it hot.

HOW TO CHOOSE . . AND COOK GAME

How to Choose Ducks—A young duck should have supple feet, breast and belly hard and thick. A tame duck has dusky yellow feet. They should be picked dry, and ducklings scalded.

How to Roast Ducks.—Carefully pick, and clean the inside. Boil two or three onions in two waters; chop them very small. Mix the onions with about half the quantity of sage leaves, bread crumbs finely powdered, a spoonful of salt, and a little cayenne paper; beat up the yolk of an egg, and rub the stuffing well together. With a brisk fire roast about 35 minutes. Serve with gravy sauce.

How to Stew Ducks.—Lard two young ducks down each side the breast; dust with flour; brown before the fire; put into a stewpan with a quart of water, a pint of port wine, a spoonful of walnut ketchup, the same of browning, one anchovy, a clove of garlick, sweet herbs and cayenne pepper. Stew till they are tender, about half an hour; skim and strain, and pour over the duck.

How to Hash Partridge.—Cut up the partridges as for eating; slice an onion into rings; roll a little butter in flour; put them into the tossing pan, and shake it over the fire till it boils; put in the partridge with a little port wine and vinegar; and when it is thoroughly hot, lay it on the dish with sippets round it; strain the sauce over the partridge, and lay on the onion in rings.

How to Pot Partridge.—Clean them nicely; and season with mace, allspice, white pepper and salt, in fine powder. Rub every part well; then lay the breast downward in a pan, and pack the birds as closely as you possibly can. Put a good deal of butter on them; then cover

he pan with a coarse flour paste and a paper over, tie it close, and bake. When cold, put the birds into pots, and cover with butter.

How to Roast Partridge.—Roast them like a turkey, and when a little under roasted, dredge them with flour, and baste them with butter; let them go to table with a fine froth; put gravy sauce in the dish, and bread sauce on the table.

How to Stew Partridge.—Truss as for roasting; stuff the craws, and lard them down each side of the breast; roll a lump of butter in pepper, salt and beaten mace, and put them inside; sew up the vents; dredge them well and fry a light brown; put them into a stewpan with a quart of good gravy, a spoonful of sherry wine, the same of mushroom ketchup, a teaspoonful of lemon pickle, and a little mushroom powder, one anchovy, half a lemon, a sprig of sweet marjoram; cover the pan close, and stew half an hour; take out, and thicken the gravy; boil a little, and pour it over the partridge, and lay round them artichoke buttons, boiled, and cut in quarters, and the yolks of four hard eggs, if agreeable.

How to Roast Pheasant.—Roast them as turkey; and serve with a fine gravy (into which put a very small bit of garlic) and bread sauce. When cold, they may be made into excellent patties, but their flavor should not be overpowered by lemon.

How to Roast Plovers.—Roast the *green* ones in the same way as woodcocks and quails, without drawing, and serve on a toast. *Grey* plovers may be either roasted or stewed with gravy, herbs and spice.

How to Fricassee Quails.—Having tossed them up in a sauce-pan with a little melted butter and mushrooms, put in a slice of ham, well beaten, with salt, pepper, cloves and savory herbs; add good gravy, and a glass of sherry; simmer over a slow fire; when almost done, thicken the ragout with a good cullis, (i. e. a good broth, strained, gelatined, etc.) or with two or three eggs, well beaten up in a little gravy.

How to Roast Quails.—Roast them without drawing and serve on toast. Butter only should be eaten with them, as gravy takes off the fine flavor. The thigh and the back are the most esteemed.

How to Roast Rabbits.—Baste them with butter, and dredge them with flour; half an hour will do them at a brisk fire; and if small, twenty minutes. Take the livers with a bunch of parsley, boil them, and chop them very fine together; melt some butter, and put half the liver and parsley into the butter; pour it into the dish, and garnish the dish with the other half; roast them to a fine light brown.

How to Make Rabbit Taste Like a Hare.—Choose one that is young, but full grown; hang it in the skin three or four days; then skin it, and lay it, without washing, in a seasoning of black pepper and allspice in a very fine powder, a glass of port wine, and the same quantity of vinegar. Baste it occasionally for 40 hours, then stuff it and roast it as a hare, and with the same sauce. Do not wash off the liquor that it was soaked in.

How to Roast Snipes—Do not draw them. Split them; flour them, and baste with butter. Toast a slice of bread brown; place it in the dish under the birds for the trail to drop on. When they are done enough, take up, and lay them on the toast; put good gravy in the dish. Serve with butter, and garnish with orange or lemon.

Snipe Pie—Bone 4 snipes, and truss them. Put in their insides finely chopped bacon, or other forcemeat; put them in the dish with the breast downwards, and put forcemeat balls around them. Add gravy made of butter, and chopped veal and ham, parsley, pepper and shalots. Cover with nice puff paste; close it well to keep in the gravy. When nearly done, pour in more gravy, and a little sherry wine. Bake two or three hours.

How to Fry Venison—Cut the meat into slices, and make a gravy of the bones; fry it of a light brown, and keep it hot before the fire; put butter rolled in flour into the pan, and stir it till thick and brown; add ½ lb. of loaf sugar powdered, with the gravy made from the bones, and some port wine. Let it be as thick as cream; squeeze in a lemon; warm the venison in it; put it in the dish, and pour the sauce over it.

HOW TO MAKE ICE CREAMS WATER-ICE AND JELLIES

To Mold Ices—Fill your mold as quicly as possible with the frozen cream, wrap it up in paper, and bury it in ice and salt, and let it remain for an hour or more to harden. For dishing, have the dish ready, dip the mold in hot water for an instant, wipe it, take off the top and bottom covers, and turn it into the dish. This must be done expeditiously. In molding ices, it is advisable not to have the cream too stifly frozen before putting it into the mold.

Ice Cream—Take two quarts milk, one pint cream, three eggs beaten very light, and two teaspoons of arrow-root; boil in one-half pint milk, strain eggs, arrow-root, and flavor to suit, then freeze.

Ginger Ice Cream—Bruise six ounces of the best preserved ginger in a mortar; add the juice of one lemon, half a pound of sugar, one pint of cream. Mix well; strain through a hair sieve; freeze. One quart.

Italian Ice Cream—Rasp two lemons on some sugar, which, with their juice, add to one pint of cream, one glass of brandy, half a pound of sugar; freeze. One quart.

Lemon Ice Cream—Take one pint of cream, rasp two lemons on sugar; squeeze them, and add the juice with half a pound of sugar. Mix; freeze. One quart.

Pine-Apple Ice Cream—Take one pound of pine-apple, when peeled, bruise it in a marble mortar, pass it through a hair sieve, add three-quarters of a pound of powdered sugar, and one pint of cream. Freeze.

Raspberry and Currant Ice Cream—Take one pound of raspberries, half a pound of red currants, three-quarters of a pound of sugar, and one pint of cream. Strain, color and freeze. One quart.

Strawberry Ice Cream—Take two pounds of fresh strawberries, carefully picked, and, with a wooden spoon, rub them through a hair seive, and about half a pound of powdered sugar, and the juice of one lemon; color with a few drops of prepared cochineal; cream, one pint; then freeze. This will make a reputed quart. When fresh strawberries are not in season take strawberry jam, the juice of two lemons, cream, to one quart. Color, strain, and freeze. Milk may be substituted for cream, and makes good ices. If too much sugar is used, the ices will prove watery, or, perhaps not freeze at all.

Vanilla Ice Cream—Pound one stick of vanilla, or sufficient to flavor it to palate, in a mortar, with half a pound of sugar; strain through a sieve upon the yolks of two eggs, put it into a stewpan, with half a pint of milk; simmer over a slow fire, stirring all the time, the same as custard; when cool add one pint of cream and the juice of one lemon; freeze. One quart.

Cherry Water-Ice—One lb. cherries, bruised in a mortar with the stones; add the juice of two lemons, half a pint of water, one pint of clarified sugar, one glass of noyeau, and a little color; strain; freeze. One quart.

Lemon Water-Ice.—Take two lemons, and rasp them on sugar, the juice of six lemons, the juice of one orange, one pint of clarified sugar, and half a pint of water. Mix; strain through a hair sieve; freeze. One quart.

Melon Water-Ice.—Half a lb. of ripe melon pounded in a mortar, two ounces of orange-flower water, the juice of two lemons, half a pint of water and one pint of clarified sugar; strain; freeze. One quart.

Strawberry or Raspberry Water-Ice.—One pound of scarlet strawberries or raspberries, half a pound currants, half a pint of water, one pint of clarified sugar, and a little color; strain and freeze. One quart.

Apple Jelly.—Cut the apples and boil in water to cover, boil down, then strain, and take a pound of sugar to a pint of juice, then boil fifteen minutes hard.

Apple Jelly.—Cut off all spots and decayed places on the apples; quarter them, but do not pare or core them; put in the peel of as many lemons as you like, about two to six or eight dozen of the apples; fill the preserving-pan, and cover the fruit with spring water; boil them till they are in pulp, then pour them into a jelly-bag; let them strain all night, do not squeeze them. To every pint of juice put one pound of white sugar; put in the juice of the lemons you had before pared, but strain it through muslin. You may also put in about a teaspoonful of essense of lemon; let it boil for at least twenty minutes; it will look redder than at first; skim it well at the time. Put it either in shapes or pots, and cover it the next day. It ought to be quite stiff and very clear.

Apple Jelly.—Prepare twenty golden pippins; boil them in a pint and a half of water from the spring till quite tender; then strain the liquor through a colander. To every pint put a pound of fine sugar; add cinnamon, grated orange or lemon; then boil to a jelly.

Another.—Prepare apples as before, by boiling and straining; have ready half an ounce of isinglass boiled in half a pint of water to a jelly; put this to the apple-water and apple, as strained through a coarse sieve; add sugar, a little lemon-juice and peel; boil all together, and put into a dish. Take out the peel.

Calf's Foot Lemon Jelly—Boil four quarts of water with three calf's feet, or two cow heels, till half wasted; take the jelly from the fat and sediment, mix with it the juice of a Seville orange and twelve lemons, the peels of three ditto, the whites and shells of twelve eggs, sugar to taste, a pint of raisin wine, 1 oz. of coriander seeds, ¼ oz. of allspice, a bit of cinnamon, and six cloves, all bruised, after having mixed them cold. The jelly should boil fifteen minutes without stirring; then clear it through a flannel bag.

Cherry Jelly.—Cherries, 5 lbs.; stone them; red currants, 2 lbs.; strain them, that the liquor may be clear; add 2 lbs. of sifted loaf sugar, and 2 ozs. of isinglass.

Chocolate Caramel—One pint milk, half pound butter, half pound Cadburry's chocolate, three pounds sugar, two spoons vanilla. Boil slowly until brittle.

Currant Jelly, Red or Black—Strip the fruit, and in a stone jar stew them in a saucepan of water or on the fire; strain off the liquor, and to every pint weigh 1 lb. of loaf sugar; put the latter in large lumps into it, in a stone or China vessel, till nearly dissolved; then put it into a preserving-pan; simmer and skim. When it will jelly on a plate put it in small jars or glasses.

Green Gooseberry Jelly—Place the berries in hot water on a slow fire till they rise to the surface; take off; cool with a little water, add also a little vinegar and salt to green them. In two hours drain, and put them in cold water a minute; drain, and mix with an equal weight of sugar; boil slowly 20 minutes; sieve, and put into glasses.

Iceland Moss Jelly—Moss, ½ to 1 oz.; water, 1 quart. Simmer down to ½ pint. Add fine sugar and a little lemon juice. It may be improved with ¼ ounce of isinglass. The moss should first be steeped in cold water an hour or two.

Isinglass Jelly—Boil one ounce of isinglass in a quart of water, with ¼ ounce of Jamaica pepper-corns or cloves, and a crust of bread, till reduced to a pint. Add sugar. It keeps well, and may be taken in wine and water, milk, tea, soup, etc.

Lemon Jelly Cake—Take four eggs, one cup sugar, butter the size of an egg, one and a half cups flour, half cup sweet milk, two teaspoons of baking powder. Jelly.—One grated lemon, one grated apple, one egg, one cup sugar, beat all together, put in a tin and stir till boils.

Lemon Jelly—Take one and a half packages of gelatine, one pint cold water, soak two hours, then add two teacups sugar, one pint boiling water; stir all together, add the juice of two lemons or one wineglass wine, strain through a cloth, and put in a mold.

Orange Jelly—It may be made the same as lemon jelly, which see. Grate the rind of two Seville and of two China oranges, and two lemons; squeeze the juice of three of each, and strain, and add to the juice a quarter of a pound of lump sugar, a quarter of a pint of water, and boil till it almost candies. Have ready a quart of isinglass jelly made with two ounces; put to it the syrup, boil it once up; strain off the jelly, and let it stand to settle as above, before it is put into the mold.

Quince Jelly—Cut in pieces a sufficient quantity of quinces; draw off the juice by boiling them in water, in which they ought only to swim, no more. When fully done drain, and have ready clarified sugar, of which put one spoonful to two of the juice; bring the sugar to the *souffle;* add the juice, and finish. When it drops from the skimmer it is enough; take it off, and pot it.

Jelly of Siberian Crabs—Take off the stalks, weigh and wash the crabs. To each one and a half pounds, add one pint of water. Boil them gently until broken, but do not allow them to fall to a pulp. Pour the whole through a jelly-bag, and when the juice is quite transparent weigh it; put it into a clean preserving-pan, boil it quickly for ten minutes, then add ten ounces of fine sugar to each pound of juice; boil it from twelve to fifteen minutes, skim it very clean, and pour into molds.

Siberian Crab-Apple Jelly—Mash the crab apples, take off stems and heads, put in pot, cover with water, let them boil to a pulp, then turn them in a flannel bag, and leave all night to strain, then add one pound of sugar to a pint of juice, boil ten to fifteen minutes, skim and put in jelly glasses.

Siberian Crab Jelly—Fill a large flannel bag with crabs. Put the bag in a preserving-pan of spring water, and boil for about seven hours; then take out the bag, and fill it so that all the syrup can run through, and the water that remains in the pan; and to each pint of syrup add one pound of loaf sugar, and boil for about an hour, and it will be a clear, bright red jelly.

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HOW TO SELECT . . . . AND COOK MEATS

How to Dress Bacon and Beans—When you dress beans and bacon, boil the bacon by itself, and the beans by themselves, for the bacon will spoil the color of the beans. Always throw some salt into the water and some parsley nicely picked. When the beans are done enough, which you will know by their being tender, throw them into a colander to drain. Take up the bacon and skin it; throw some raspings of the bread over the top, and if you have a salamander, make it red hot, and hold it over it to brown the top of the bacon; if you have not one, set it before the fire to brown. Lay the beans in the dish, and the bacon in the middle on the top, and send them to table, with butter in a tureen.

Corned Beef—Make the following pickle: Water, 2 gallons; salt, 2½ lbs.; molasses, ¼ lb.; sugar, 1 lb.; saltpetre, 1½ ozs.; pearlash, ¼ oz. Boil all together; skim, and pour the pickle on about 25 lbs. of beef. Let it stay in a few days. Boil in plenty of water when cooked to remove the salt, and eat with it plenty of vegetables. It is nice to eat cold, and makes excellent sandwiches.

Rolled Beef—Hang three ribs three or four days; take out the bones from the whole length, sprinkle it with salt, roll the meat tight and roast it. Nothing can look nicer. The above done with spices, etc., and baked as hunters' beef is excellent.

Beef, Rolled to equal Hare—Take the inside of a large sirloin, soak it in a glass of port wine and a glass of vinegar mixed, for forty-eight hours; have ready a very fine stuffing, and bind it up tight. Roast it on a hanging spit; and baste it with a glass of port wine, the same quantity of vinegar, and a teaspoonful of pounded allspice. Larding it improves the look and flavor; serve with a rich gravy in the dish; currant-jelly and melted butter in tureens.

Round of Beef—Should be carefully salted and wet with the pickle for eight or ten days. The bone should be cut out first, and the beef skewered and tied up to make it quite round. It may be stuffed with parsley, if approved, in which case the holes to admit the parsley must be made with a sharp pointed knife, and the parsley coarsely cut and stuffed in tight. As soon as it boils, it should be skimmed: and afterwards kept boiling very gently.

Beef Steak, Stewed—Peel and chop two Spanish onions, cut into small parts four pickled walnuts, and put them at the bottom of a stewpan; add a teacupful of mushroom ketchup, two teaspoonfuls of walnut ditto, one of shalot, one of Chile vinegar, and a lump of butter. Let the rump-steak be cut about three-quarters of an inch thick, and beat it flat with a rolling-pin, place the meat on the top of the onions, etc., let it stew for one hour and a half, turning it every twenty minutes. Ten minutes before serving up, throw a dozen oysters with the liquor strained.

Beef Steak and Oyster Sauce—Select a good, tender rump-steak, about an inch thick, and broil it carefully. Nothing but experience and attention will serve in broiling a steaks; one thing, however, is always to be remembered, never malt or season broiled meat until cooked. Have the gridiron clean and hot, grease it with either butter, or good lard, before laying on the meat, to prevent its sticking or marking the meat; have clear, bright coals, and turn it frequently. When cooked, cover tightly, and have ready nicely stewed oysters; then lay the steak in a hot dish and pour over some of the oysters. Serve the rest in a tureen. Twenty-five oysters will make a nice sauce for a steak.

Fricassee of Cold Roast Beef—Cut the beef into very thin slices; shred a handful of parsley very small, cut an onion into quarters, and put all together into a stewpan, with a piece of butter, and some strong broth; season with salt and pepper, and simmer very gently a quarter of an hour; then mix into it the yolks of two eggs, a glass of port wine, and a spoonful of vinegar; stir it quickly, rub the dish with shalot, and turn the fricassee into it.

Brawn—Clean a pig's head, and rub it over with salt and a little saltpetre, and let it lie two or three days; then boil it until the bones will leave the meat; season with salt and pepper, and lay the meat hot in a mold, and press and weigh it down for a few hours. Boil another hour, covering. Be sure and cut the tongue, and lay the slices in the middle, as it much improves the flavor.

Calf's Liver and Bacon—Cut the liver into slices, and fry it first, then the bacon; lay the liver in the dish, and the bacon upon it; serve it up with gravy, made in the pan with boiling water, thickened with flour and butter, and lemon juice; and, if agreeable, a little parsley and onion may be chopped into it, or a little boiled parsley strewed over the liver. Garnish with slices of lemon.

Nice Form of Cold Meats—Remains of boiled ham, mutton, roast beef, etc., are good chopped fine with hard boiled eggs, two heads of lettuce, a bit of onion, and seasoned with mustard, oil, vinegar, and, if needed, more salt. Fix it smoothly in a salad dish, and adorn the edges with sprigs of parsley or leaves of curled lettuce. Keep by the ice or in a cool place until wanted.

Fried Ham and Eggs—Cut thin slices, place in the pan, and fry carefully. Do not burn. When done break the eggs into the fat; pepper slightly; keep them whole; do not turn them.

Ham Rashers may be served with spinach and poached eggs.

To Cook Ham—Scrape it clean. Do not put into cold nor boiling water. Let the water become warm; then put the ham in. Simmer or boil lightly for five or six hours; take out, and shave the rind off. Rub granulated sugar into the whole surface of the ham, so long as it can be made to receive it. Place the ham in a baking-dish with a bottle of champagne or prime cider. Baste occasionally with the juice, and let it bake an hour in a gentle heat.

A slice from a nicely cured ham thus cooked is enough to animate the ribs of death.

Or, having taken off the rind, strew bread crumbs or raspings over it, so as to cover it; set it before the fire, or in the oven till the bread is crisp and brown. Garnish with carrots, parsley, etc. The water should simmer all the time, and never boil fast.

Ham and Chicken, in Jelly—This is a nice dish for supper or luncheon. Make with a small knuckle of veal some good white stock. When cold, skim and strain it. Melt it, and put a quart of it into a saucepan with the well beaten whites of three eggs; a dessert-spoonful of Chili, or a tablespoonful of tarragon vinegar, and a little salt. Beat the mixture well with a fork till it boils; let it simmer till it is reduced to a little more than a pint; strain it; put half of it into a mold; let it nearly set. Cut the meat of a roast chicken into small thin pieces; arrange it in the jelly with some neat little slices of cold boiled ham, and sprinkle chopped parsley between the slices. When it has got quite cold, pour in the remainder of the jelly, and stand the mold in cold water, or in a cool place, so that it

sets speedily. Dip the mold in boiling water to turn it out. Do not let it remain in the water more than a minute, or it will spoil the appearance of the dish. Garnish with a wreath of parsley.

Leg of Lamb—Should be boiled in a cloth to look as white as possible. The loin fried in steaks and served round, garnished with dried or fried parsley; spinach to eat with it; or dressed separately or roasted.

Loin of Mutton—Take off the skin, separate the joints with the chopper; if a large size, cut the chine-bone with a saw, so as to allow it to be carved in smaller pieces; run a small spit from one extremity to the other, and affix it to a larger spit, and roast it like the haunch. A loin weighing six pounds will take one hour to roast.

Observations on Meat—In all kinds of provisions, the best of the kind goes the farthest; it cuts out with most advantage, and affords most nourishment. Round of beef, fillet of veal, and leg of mutton, are joints of higher price; but as they have more solid meat, they deserve the preference. But those joints which are inferior may be dressed as palatably.

In loins of meat, the long pipe that runs by the bone should be taken out, as it is apt to taint; as also the kernels of beef. Do not purchase joints bruised by the blows of drovers.

Save shank bones of mutton to enrich gravies or soups.

When sirloins of beef, or loins of veal or mutton, come in, part of the suet may be cut off for puddings, or to clarify.

Dripping will baste anything as well as butter; except fowls and game; and for kitchen pies, nothing else should be used.

The fat of a neck or loin of mutton makes a far lighter pudding than suet.

Frosted meat and vegetables should be soaked in *cold water* two or three hours before using.

If the weather permit, meat eats much better for hanging two or three days before it is salted.

Roast-beef bones, or shank bones of ham, make fine peas-soup; and should be boiled with the peas the day before eaten, that the fat may be taken off.

Boiled Leg of Mutton—Soak well for an hour or two in salt and water; do not use much salt. Wipe well and boil in a floured cloth. Boil from two hours to two hours and a half. Serve with caper sauce, potatoes, mashed turnips, greens, oyster sauce, etc.

☞To preserve the gravy in the leg, do not put it in the water till it boils; for the sudden contact with water causes a slight film over the surface, which prevents the escape of the gravy, which is abundant when carved.

How to Hash Mutton.—Cut thin slices of dressed mutton, fat and lean; flour them; have ready a little onion boiled in two or three spoonfuls of water; add to it a little gravy and the meat seasoned, and make it hot, but not to boil. Serve in a covered dish. Instead of onion, a clove, a spoonful of current jelly, and half a glass of port wine will give an agreeable flavor of venison, if the meat be fine.

Pickled cucumber, or walnut cut small, warm in it for change.

How to Prepare Pig's Cheek for Boiling.—Cut off the snout, and clean the head; divide it, and take out the eyes and the brains; sprinkle the head with salt, and let it drain 24 hours. Salt it with common salt and saltpetre; let it lie nine days if to be dressed without stewing with peas, but less if to be dressed with peas, and it must be washed first, and then simmer till all is tender.

Pig's Feet and Ears.—Clean carefully, and soak some hours, and boil them tender; then take them out; boil some vinegar and a little salt with some of the water, and when cold put it over them. When they are to be dressed, dry them, cut the feet in two, and slice the ears; fry, and serve with butter, mustard and vinegar. They may be either done in batter, or only floured.

Pork, Loin of.—Score it, and joint it, that the chops may separate easily; and then roast it as a loin of mutton. Or, put it into sufficient water to cover it; simmer till almost enough; then peel off the skin, and coat it with yolk of egg and bread crumbs, and roast for 15 or 20 minutes, till it is done enough.

How to Pickle Pork.—Cut the pork in such pieces as will lie in the pickling tub; rub each piece with saltpetre; then take one part bay salt, and two parts common salt, and rub each piece well; lay them close in the tub, and throw salt over them.

Some use a little sal prunnella, and a little sugar.

Pork Pie, to Eat Cold.—Raise a common boiled crust into either a round or oval form, which you choose, have ready the trimmings and small bits of pork cut off a sweet bone, when the hog is killed, beat it with a rolling-pin, season with pepper and salt, and keep the fat and lean separate, put it in layers quite close to the top, lay on the lid, cut the edge smooth, round, and pinch it; bake in a slow-soaking oven, as the meat is very solid. Observe, put no bone or water in the pork pie; the outside pieces will be hard if they are not cut small and pressed close.

How to Roast a Leg of Pork.—Choose a small leg of fine young pork; cut a slit in the knuckle with a sharp knife; and fill the space with sage and onion chopped, and a little pepper and salt. When half done, score the skin in slices, but don't cut deeper than the outer rind.

Apple sauce and potatoes should be served to eat with it.

Pork Rolled Neck of.—Bone it; put a forcemeat of chopped sage, a very few crumbs of bread, salt, pepper and two or three berries of allspice over the inside; then roll the meat as tight as you can, and roast it slowly, and at a good distance at first.

Chine of Pork.—Salt three days before cooking Wash it well; score the skin, and roast with sage and onions finely shred. Serve with apple sauce.—The chine is often sent to the table boiled.

How to Collar Pork.—Bone a breast or spring of pork; season it with plenty of thyme, parsley and sage; roll it hard; put in a cloth, tie both ends, and boil it; then press it; when cold, take it out of the cloth, and keep it in its own liquor.

Pork as Lamb.—Kill a young pig of four or five months old: cut up the forequarter for roasting as you do lamb, and truss the shank close. The other parts will make delicate pickled pork; or steaks, pies, etc.

Pork Sausages.—Take 6 lbs. of young pork, free from gristle, or fat; cut small and beat fine in a mortar. Chop 6 lbs. of beef suet very fine; pick off the leaves of a handfull of sage, and shred it fine; spread the meat on a clean dresser, and shake the sage over the meat; shred the rind of a lemon very fine, and throw it, with sweet herbs, on the meat; grate two nutmegs, to which put a spoonful of pepper, and a large spoonful of salt; throw the suet over, and mix all well together. Put it down close in the pot; and when you use it, roll it up with as much egg as will make it roll smooth.

Sausage Rolls.—One pound of flour, half a pound of the best lard, quarter of a pound of butter, and the yolks of three eggs well beaten. Put the flour into a dish, make a whole in the middle of it, and rub in about one ounce of the lard, then the yolks of the eggs, and enough water to mix the whole into a smooth paste. Roll it out about an

inch thick; flour your paste and board. Put the butter and lard in a lump into the paste, sprinkle it with flour, and turn the paste over it; beat it with a rolling-pin until you have got it flat enough to roll; roll it lightly until very thin; then divide your meat and put it into two layers of paste, and pinch the ends. Sausage rolls are now usually made small. Two pounds of sausage meat will be required for this quantity of paste, and it will make about two and a half dozen of rolls. Whites of the eggs should be beaten a little, and brushed over the rolls to glaze them. They will require from twenty minutes to half an hour to bake, and should be served on a dish covered with a neatly-fold napkin.

Spiced Beef.—Take a round of an ox; or young heifer, from 20 to 40 lbs. Cut it neatly, so that the thin flank end can wrap nearly round. Take from 2 to 4 ounces salpetre, and 1 ounce of coarse sugar, and two handfuls of common salt. Mix them well together and rub it all over. The next day salt it well as for boiling. Let it lie from two to three weeks, turning it every two or three days. Take out of the pickle, and wipe it dry. Then take cloves, mace, well powdered, a spoonful of gravy, and rub it well into the beef. Roll it up as tightly as possible; skewer it, and tie it up tight. Pour in the liquor till the meat is quite saturated, in which state it must be kept.

Stewed Beef.—Take five pounds of buttock, place it in a deep dish; half a pint of white wine vinegar, three bay leaves, two or three cloves, salt and pepper; turn it over twice the first day, and every morning after for a week or ten days. Boil half a pound or a quarter of a pound of butter, and throw in two onions, chopped very small, four cloves, and some pepper-corns; stew five hours till tender and a nice light brown.

How to Boil Tongue.—If the the tongue be a dry one, steep in water all night. Boil it three hours. If you prefer it hot, stick it with cloves. Clear off the scum, and add savory herbs when it has boiled two hours; but this is optional. Rub it over with the yolk of an egg; strew over it bread crumbs; baste it with butter; set it before the fire till it is of a light brown. When you dish it up, pour a little brown gravy, or port wine sauce mixed the same way as for venison. Lay slices of currant jelly around it.

How to Fricassee Tripe.—Cut into small square pieces. Put them into the stewpan with as much sherry as will cover them, with pepper, ginger, a blade of mace, sweet herbs and an onion. Stew 15 minutes. Take out the herbs and onion, and put in a little shred of parsley, the juice of a small lemon, half an anchovy cut small, a gill of cream and a little butter, or yolk of an egg. Garnish with lemon.

How to Fry Tripe.—Cut the tripe into small square pieces; dip them in yolks of eggs, and fry them in good dripping, till nicely brown; take out and drain, and serve with plain melted butter.

Veal Cutlets, Maintenon.—Cut slices about three quarters of an inch thick, beat them with a rolling-pin, and wet them on both sides with egg; dip them into a seasoning of bread-crumbs, parsley, thyme, knotted marjoram, pepper, salt and a little nutmeg grated; then put them in papers folded over, and broil them; and serve with a boat of melted butter, with a little mushroom ketchup.

Veal Cutlets.—Another way.—Prepare as above, and fry them; lay into a dish, and keep them hot; dredge a little flour, and put a bit of butter into the pan; brown it, then pour some boiling water into it and boil quickly; season with pepper, salt and ketchup and pour over them.

Another Way.—Prepare as before, and dress the cutlets in a dutch oven; pour over them melted butter and mushrooms.

Fillet of Veal.—Veal requires a good, bright fire for roasting. Before cooking, stuff with a force-meat, composed of 2 ozs. of finely-powdered bread crumbs, half a lemon-peel chopped fine, half a teaspoonful of salt, and the same quantity of mixed mace and cayenne pepper, powdered parsley, and some sweet herbs; break an egg, and mix all well together. Baste your joint with fresh butter, and send it to table well browned. A nice bit of bacon should be served with the fillet of veal, unless ham is provided.

Veal Patties.—Mince some veal that is not quite done with a little parsley, lemon-peel, a scrape of nutmeg, and a bit of salt; add a little cream and gravy just to moisten the meat; and add a little ham. Do not warm it till the patties are baked.

Veal Pie.—Take some of the middle, or scrag, of a small neck; season it; and either put to it, or not, a few slices of lean bacon or ham. If it is wanted of a high relish, add mace, cayenne, and nutmeg, to the salt and pepper; and also force-meat and eggs; and if you choose, add truffles, morels, mushrooms, sweet-bread, cut into small bits, and cocks'-combs blanched, if liked. Have a rich gravy ready, to pour in after baking.—It will be very good without any of the latter additions.

Common Veal Pie.—Cut a breast of veal into pieces; season with pepper and salt, and lay them in the dish. Boil hard six or eight yolks of eggs, and put them into different places in the pie; pour in as much water as will nearly fill the dish; put on the lid, and bake.—*Lamb Pie* may be done this way.

Stewed Veal.—Cut the veal as for small cutlets; put into the bottom of a pie-dish a layer of the veal, and sprinkle it with some finely-rubbed sweet basil and chopped parsley, the grated rind of one lemon with the juice, half a nut-meg, grated, a little salt and pepper; and cut into very small peices a large spoonful of butter; then another layer of slices of veal, with exactly the same seasoning as before; and over this pour one pint of Lisbon wine and half a pint of cold water; then cover it over very thickly with grated stale bread; put this in the oven and bake slowly for three-quarters of an hour, and brown it. Serve it in a pie-dish hot.

Breast of Veal Stuffed—Cut off the gristle of a breast of veal, and raise the meat off the bones, then lay a good force-meat, made of pounded veal, some sausage-meat, parsley, and a few shalots chopped very fine, and well seasoned with pepper, salt, and nutmeg; then roll the veal tightly, and sew it with fine twine to keep it in shape, and prevent the force-meat escaping; lay some slices of fat bacon in a stew-pan, and put the veal roll on it; add some stock, pepper, salt, and a bunch of sweet herbs; let it stew three hours, then cut carefully out the twine, strain the sauce after skimming it well, thicken it with brown flour; let it boil up once, and pour it over the veal garnish with slices of lemon, each cut in four. A fillet of veal first stuffed with force-meat can be dressed in the same manner, but is must first be roasted, so as to brown it a good color; and force-meat balls, highly seasoned, should be served round the veal.

. . HOW TO MAKE PIES

OF VARIOUS KINDS

Beef-Steak Pie—Prepare the steaks as stated under *Beefsteaks*, and when seasoned and rolled with fat in each,

put them in a dish with puff paste round the edges; put a little water in the dish, and cover it with a good crust.

Chicken Pie—Cut the chicken in pieces, and boil nearly tender. Make a rich crust with an egg or two to make it light and puffy. Season the chicken and slices of ham with pepper, salt, mace, nutmeg, and cayenne. Put them in layers, first the ham, chicken, force-meat balls, and hard eggs in layers. Make a gravy of knuckle of veal, mutton bones, seasoned with herbs, onions, pepper, etc. Pour it over the contents of the pie, and cover with paste. bake an hour.

Cocoanut Pie—Take a teacup of coaconut, put it into a coffee-cup, fill it up with sweet milk, and let it soak a few hours. When ready to bake the pie, take two tablespoonfuls of flour, mix with milk, and stir in three-fourths of a cup of milk (or water); place on the stove, and stir until it thickens. Add butter the size of a walnut, while warm. When cool, add a little salt, two eggs, saving out the white of one for the top. Sweeten to taste. Add the cocoanut, beating well. Fill the crust and bake. When done, have the extra white beaten ready to spread over the top. Return to the oven and brown lightly.

Cream Pie—Take eight eggs, eight ounces pounded sugar, eight ounces flour, put all together into a stew-pan with two glasses of milk, stir until it boils, then add quarter pound of butter, and quarter pound of almonds, chopped fine; mix well together, make paste, roll it out half an inch thich, cut out a piece the size of a teaplate, put in a baking tin, spread out on it the cream, and lay strips, of paste across each way and a plain broad piece around the edge, egg and sugar the top and bake in a quick oven.

Fish Pie—Pike, perch and carp may be made into very savory pies if cut into fillets, seasoned and baked in paste, sauce made of veal broth, or cream put in before baking.

Game Pie—Divide the birds, if large, into pieces or joints. They may be pheasants, partridges, etc. Add a little bacon or ham. Season well. Cover with puff paste, and bake carefully. Pour into the pie half a cupful of melted butter, the juice of a lemon, and a glass of sherry, when rather more than half baked.

Giblet Pie—Clean the giblets well; stew with a little water, onion, pepper, salt, sweet herbs, till nearly done. Cool, and add beef, veal or mutton steaks. Put the liquor of the stew to the giblets. Cover with paste, and when the pie is baked, pour into it a large teacupful of cream.

Lamb Pasty—Bone the lamb, cut it into square pieces; season with salt, pepper; cloves, mace, nutmeg, and minced thyme; lay in some beef suet, and the lamb upon it, making a high border about it; then turn over the paste close, and bake it. When it is enough, put in some claret, sugar, vinegar, and the yolks of eggs, beaten, together. To have the sauce only savory, and not sweet, let it be gravy only, or the baking of bones in claret.

Salmon Pie.—Grate the rind of one small lemon, or half a large one; beat the yolks of 2 eggs; 4 tablespoons of sugar; beat all together; add to this ½ pint of cold water, with 1½ tablespoons of flour in it; rub smooth so there will be no lumps; beat the whites of two eggs to a stiff froth; stir this in your pie-custard before you put it in the pan. Bake with one crust, and bake slowly.

Salmon Pie—Grate the rind of a lemon into the yolks of three fresh eggs; beat for five minutes, adding three heaping tablespoonfuls of granulated sugar; after squeezing in the juice of the lemon add half a teacupful of water; mix all thoroughly, and place in a crust the same as made for custard pie; place in oven and bake slowly. Take the whites of the three eggs, and beat to a stiff froth, adding two tablespoonfuls of pulverized sugar, and juice of half a lemon; after the pie bakes and is cool, place the frosting on top, and put into a hot oven to brown.

Mince-Meat—There are various opinons as to the result of adding meat to the sweet ingredients used in making this favorite dish. Many housewives think it an improvement, and use either the under-cut of a well-roasted surloin of beef or a boiled fresh ox-tongue for the purpose. Either of these meats may be chosen with advantage, and one pound, after it has been cooked, will be found sufficient; this should be freed from fat, and well mince. In making mince-meat, each ingredient should be minced separately and finely before it is added to the others. For a moderate quantity, take two pounds of raisins (stoned), the same quantity of currants, well washed and dried, ditto of beef suet, chopped fine, one pound of American apples, pared and cored, two pounds of moist sugar, half a pound of candied orange-peel, and a quarter of a pound of citron, the grated rinds of three lemons, one grated nutmeg, a little mace, half an ounce of salt, and one teaspoonful of ginger. After having minced the fruit separately, mix all well together with the hand; then add half a pint of French brandy and the same of sherry. Mix well with a spoon, press it down in jars, and cover it with a bladder.

Good Mince Pies.—Six pounds beef; 5 pounds suet; 5 pounds sugar; 2 ounces allspice; 2 ounces cloves; ¾ pound cinnamon; ½ pint molasses; 1¼ pounds seedless raisins; 2 pounds currants; ½ pound citron chopped fine; 1 pound almonds, chopped fine; 2 oranges; 1 lemon-skin, and all chopped fine; 2 parts chopped apples to one of meat; brandy and cider to taste.

Mock Mince Pies.—One teacup of bread; one of vinegar; one of water; one of raisins; one of sugar; one of molasses; one half-cup of butter; one teaspoon of cloves; one of nutmeg; one of cinnamon. The quantity is sufficient for three pies. They are equally as good as those made in the usual way,

Potato Pasty.—Boil and peel and mash potatoes as fine as possible; mix them with salt, pepper, and a good bit of butter. Make a paste; roll it out thin like a large puff, and put in the potato; fold over one half, pinching the edges. Bake in a moderate oven.

Potato Pie.—Skin some potatoes and cut them in slices; season them; and also some mutton, beef, pork or veal, and a lump of butter. Put layers of them and of the meat. A few eggs boiled and chopped fine improves it.

Veal and Ham Pie.—Cut about one pound and a half of veal into thin slices, as also a quarter of a pound of cooked ham; season the veal rather highly with white pepper and salt, with which cover the bottom of the dish; then lay over a few slices of ham, then the remainder of the veal, finishing with the remainder of the ham; add a wineglassful of water, and cover with a good paste, and bake; a bay-leaf will be an improvement.

Vinegar Pie.—Five tablespoons vinegar, five sugar, two flour, two water, a little nutmeg. Put in dish and bake.

HOW TO MAKE PRESERVES

OF VARIOUS KINDS

Apple Jam.—Fill a wide jar nearly half full of water; cut the apples unpeeled into quarters, take out the core, then fill the jar with the apples; tie a paper over it, and put it into a slow oven. When quite soft and cool, pulp

them through a sieve. To each pound of pulp put three-quarters of a pound of crushed sugar, and boil it gently until it will jelly. Put it into large tart dishes or jars. It will keep for five or more years in a cool, dry place. If for present use, or a month hence, half a pound of sugar is enough.

Apple Marmalade.—Scald apples till they will pulp from the core; then take an equal weight of sugar in large lumps, just dip them in water, and boil it till it can be well skimmed, and is a thick syrup, put to it the pulp, and simmer it on a quick fire a quarter of an hour. Grate a little lemon-peel before boiled, but if too much it will be bitter.

Barberry Jam.—The barberries for this preserve should be quite ripe, though they should not be allowed to hang until they begin to decay. Strip them from the stalks; throw aside such as are spotted, and for one pound of fruit allow eighteen onnces well-refined sugar; boil this, with about a pint of water to every four pounds, until it becomes white, and falls in thick masses from the spoon; then throw in the fruit, and keep it stirred over a brisk fire for six minutes only; take off the scum, and pour it into jars or glasses. Sugar four and a half pounds; water a pint and a quarter, boil to candy height; barberries four pounds; six minutes.

How to Preserve Black Currants.—Get the currants when they are dry, and pick them; to every 1¼ lbs. of currants put 1 lb. of sugar into a preserving pan, with as much juice of currants as will dissolve it; when it boils skim it, and put in the currants, and boil them till they are clear; put them into a jar, lay brandy paper over them, tie them down, and keep in a dry place. A little raspberry juice is an improvement.

Cherry Jam.—Pick and stone 4 lbs. of May-duke cherries; press them through a sieve; then boil together half a pint of red currant or raspberry juice, and ¾ lb. of white sugar, put the cherries into them while boiling; add 1 lb. of fine white sugar. Boil quickly 35 minutes, jar, and cover well.

Cherry Marmalade.—Take some very ripe cherries; cut off the stalks and take out the stones; crush them and boil them well; put them into a hand sieve, and force them through with a spatula, till the whole is pressed through and nothing remains but the skins; put it again upon the fire to dry; when reduced to half weigh it, and add an equal weight of sugar; boil again; and when it threads between the fingers, it is finished.

How to Preserve Currants for Tarts.—Let the currants be ripe, dry and well picked. To every 1¼ lbs. of currants put 1 lb. of sugar into a preserving pan with as much juice of currants as will dissolve it; when it boils skim it, and put in the currans; boil till clear; jar, and put brandy-paper over; tie down; keep in a dry place.

How to Preserve Grapes.—Into an air-tight cask put a layer of bran dried in an oven; upon this place a layer of grapes, well dried, and not quite ripe, and so on alternately till the barrel is filled; end with bran, and close air-tight; they will keep 9 or 10 months. To restore them to their original freshness, cut the end off each bunch stalk, and put into wine, like flowers. Or,

Bunches of grapes may be preserved through winter by inserting the end of the stem into a potato. The bunches should be laid on dry straw, and turned occasionally.

How to Preserve Green Gages.—Choose the largest when they begin to soften; split them without paring; strew upon them part of the sugar. Blanch the kernels with a sharp knife. Next day pour the syrup from the fruit, and boil it with the other sugar six or eight minutes gently; skim and add the plums and kernels. Simmer till clear, taking off the scum; put the fruit singly into small pots, and pour the syrup and kernels to it. To candy it, do not add the syrup, but observe the directions given for candying fruit; some may be done each way.

Green Gage Jam.—Peel and take out the stones. To 1 lb. of pulp put ¾ lb. loaf sugar; boil half an hour; add lemon juice.

Transparently Beautiful Marmalade.—Take 3 lbs. bitter oranges; pare them as you would potatoes; cut the skin into fine shreds, and put them into a muslin bag; quarter all the oranges; press out the juice. Boil the pulp and shreds in three quarts of water 2½ hours, down to three pints; strain through a hair sieve. Then put six pounds of sugar to the liquid, the juice and the shreds, the outside of two lemons grated, and the insides squeezed in; add three cents worth of isinglass. Simmer altogether slowly for 15 or 20 minutes.

Tomato Marmalade.—Take ripe tomatoes in the height of the season; weigh them, and to every pound of tomatoes add one pound of sugar. Put the tomatoes into a large pan or small tub, and scald them with boiling water, so as to make the skin peel off easily; When you have entirely removed the skin, put the tomatoes (without any water) into a preserving kettle, wash them, and add the sugar, with one ounce of powdered ginger to every three pounds of fruit, and the juice of two lemons, the grated rind of three always to every three pounds of fruit. Stir up the whole together, and set it over a moderate fire. Boil it gently for two or three hours; till the whole becomes a thick, smooth mass, skimming it well, and stirring it to the bottom after every skimming. When done, put it warm into jars, and cover tightly. This will be found a very fine sweetmeat.

How to Preserve Green Peas.—Shell, and put them into a kettle of water when it boils; give them two or three warms only, and pour them in a colander. Drain, and turn them out on a cloth, and then on another to dry perfectly. When dry bottle them in wide mouthed bottles; leaving only room to pour clarified mutton suet upon them an inch thick, and for the cork. Rosin it down; and keep in the cellar, or in the earth, as directed for gooseberries. When they are to be used, boil them till tender, with a bit of butter, a spoonful of sugar, and a bit of mint.

How to Preserve Green Peas for Winter Use.—Carefully shell the peas; then place them in the canister, not too large ones; put in a small piece of alum, about the size of a horse-bean to a pint of peas. When the canister is full of peas, fill up the interstices with water, and solder on the lid perfectly air-tight, and boil the canisters for about twenty minutes; then remove them to a cool place, and by the time of January they will be found but little inferior to fresh, new-gathered peas. Bottling is not so good; at least, we have not found it so; for the air gets in, the liquid turns sour, and the peas acquire a bad taste.

How to Keep Preserves.—Apply the white of an egg, with a brush, to a single thickness of white tissue paper, with which covers the jars, lapping over an inch or two. It will require no tying, as it will become, when dry, inconceivably tight and strong, and impervious to the air.

Quinces for the Tea-table.—Bake ripe quinces thoroughly; when cold, strip off the skins, place them in a glass dish, and sprinkle with white sugar; and serve them with cream. They make a fine looking dish for the tea-table, and a more luscious and inexpensive one than the same fruit made into sweetmeats. Those who once taste the fruit thus prepared, will probably desire to store away a few bushels in the fall to use in the above manner.

Pickled Pears.—Three pounds of sugar to a pint of vinegar, spice in a bag and boil, then cook the pears in the vinegar till done through.

Boiled Pears.—Boil pears in water till soft, then add one pound of sugar to three pounds of fruit.

Pickled Citron.—One quart vinegar, two pounds sugar, cloves and cinnamon each one tablespoon, boil the citron tender in water, take them out and drain, then put them in the syrup and cook till done.

How to Preserve Raspberries.—Take raspberries that are not too ripe, and put them to their weight in sugar, with a little water. Boil softly, and do not break them; when they are clear, take them up, and boil the syrup till it be thick enough; then put them in again, and when they are cold, put them in glasses or jars.

Raspberry Jam.—One pound sugar to four pounds fruit, with a few currants.

Spiced Currants.—Six pounds currants, four pounds sugar, two tablespoons cloves and two of cinnamon, and one pint of vinegar; boil two hours until quite thick.

Stewed Pears—Pare and halve or quarter a dozen pears, according to their size; carefully remove the cores, but leave the sloths on. Place them in a clean baking-jar, with a closely fitting lid; add to them the rind of one lemon, cut in strips, and the juice of half a lemon, six cloves, and whole allspice, according to discretion. Put in just enough water to cover the whole, and allow half a pound of loaf-sugar to every pint. Cover down close, and bake in a very cool oven for five hours, or stew them very gently in a lined saucepan from three to four hours. When done, lift them out on a glass dish without breaking them; boil up the syrup quickly for two or three minutes; let it cool a little, and pour it over the pears. A little cochineal greatly enhances the appearance of the fruit; you may add a few drops of prepared cochineal; and a little port wine is often used, and much improves the flavor.

How to Preserve Whole Strawberries—Take equal weights of the fruit and refined sugar, lay the former in a large dish, and sprinkle half the sugar in fine powder over, give a gentle shake to the dish that the sugar may touch the whole of the fruit; next day make a thin syrup with the remainder of the sugar, and instead of water allow one pint of red currant juice to every pound of strawberries; in this simmer them until sufficiently jellied. Choose the largest scarlets, or others when not dead ripe.

How to Preserve Strawberries in Wine—Put a quantity of the finest large strawberries into a gooseberry-bottle, and strew in three large spoonfuls of fine sugar; fill up with Madeira wine or fine sherry.

Preserved Tomatoes—One pound of sugar to one pound of ripe tomatoes boiled down; flavor with lemon.

. . . HOW TO BOIL, BAKE AND STEAM

PUDDINGS . .

Amber Pudding—Put a pound of butter into a saucepan, with three quarters of a pound of loaf sugar finely powdered; melt the butter, and mix well with it; then add the yolks of fifteen eggs well beaten, and as much fresh candied orange as will add color and flavor to it, being first beaten to a fine paste. Line the dish with paste for turning out; and when filled with the above, lay a crust over, as you would a pie, and bake in a slow oven. It is as good cold as hot.

Baked Apple Pudding—Pare and quarter four large apples; boil them tender with the rind of a lemon, in so little water, that when done, none may remain; beat them quite fine in a mortar; add the crumbs of a small roll, four ounces of butter melted, the yolks of five, and whites of three eggs, juice of half a lemon, and sugar to taste; beat all together, and lay it in a dish with paste to turn out.

Boiled Apple Pudding—Suet, 5 ozs.; flour, 8 ozs.; chop the suet very fine, and roll it into the flour. Make it into a light paste with water. Roll out. Pare and core 8 good sized apples; slice them; put them on the paste, and scatter upon them ½ lb. of sugar; draw the paste round the apples, and boil two hours or more, in a well floured cloth. Serve with melted butter sweetened.

Swiss Apple Pudding—Butter a deep dish; put into it a layer of bread crumbs; then a layer of finely chopped suet; a thick layer of finely chopped apples, and a thick layer of sugar. Repeat from the first layer till the dish is full, the last layer to be finger biscuits soaked in milk. Cover it till nearly enough; then uncover, till the top is nicely browned. Flavor with cinnamon, nutmeg, etc., as you please. Bake from 30 to 40 minutes.

Apple and Sago Pudding—Boil a cup of sago in boiling water with a little cinnamon, a cup of sugar, lemon flavoring; cut apples in thin slices, mix them with the sago; after it is well boiled add a small piece of butter; pour into a pudding dish and bake half an hour.

Apple Pudding—Pare and stew three pints of apples, mash them, and add four eggs, a quarter of a pound of butter, sugar and nutmeg, or grated lemon. Bake it on a short crust.

Apple Potatoe Pudding.—Six potatoes boiled and mashed fine, add a little salt and piece of butter, size of an egg, roll this out with a little flour, enough to make a good pastry crust which is for the outside of the dumpling, into this put peeled and chopped apples, roll up like any apple dumpling, steam one hour, eat hot with liquid sauce.

Arrow-root Pudding.—Take 2 teacupfuls of arrow-root, and mix it with half a pint of cold milk; boil another half pint of milk, flavoring it with cinnamon, nutmeg or lemon peel, stir the arrowroot and milk into the boiling milk. When cold, add the yolks of 3 eggs beaten into 3 ozs. of sugar. Then add the whites beaten to a stiff broth, and bake in a buttered dish an hour. Ornament the tops with sweetmeats, or citron sliced.

Aunt Nelly's Pudding—Half a pound of flour half pound of treacle, six ounces of chopped suet, the juice and peel of one lemon, 4 tablespoonfuls of cream, two or three eggs. Mix and beat all together. Boil in a basin (previously well buttered) four hours.—For sauce, melted butter, a wine-glassful of sherry, and two or three tablespoonfuls of apricot jam.

Baked Indian Pudding.—Two quarts sweet milk; 1 pint New Orleans molasses; 1 pint Indian meal; 1 tablespoonful butter; nutmeg or cinnamon. Boil the milk; pour it over the meal and molasses; add salt and spice; bake three hours. This is a large family pudding.

Batter, to be used with all Sorts of Roasting Meat.—Melt good butter; put to it three eggs, with the whites well beaten up, and warm them together, stirring them continually. With this you may baste any roasting meat, and then sprinkle bread crumbs thereon; and so continue to make a crust as thick as you please.

Batter, for Frying Fruit, Vegetables, etc.—Cut four ounces of fresh butter into small pieces, pour on it half a pint of barley water, and when dissolved, add a pint of cold water; mix by degrees with a pound of fine dry flour, and a small pinch of salt. Just before it is used,

stir into it the whites of two eggs beaten to a solid froth; use quickly, that the batter may be light.

Beef Steak Pudding.—Take some fine rump steaks; roll them with fat between; and if you approve a little shred onion. Lay a paste of suet in a basin, and put in the chopped steaks; cover the basin with a suet paste, and pinch the edges to keep the gravy in. Cover with a cloth tied close, let the pudding boil slowly for two hours.

Baked Beef Steak Pudding.—Make a batter of milk, two eggs and flour, or, which is much better, potatoes boiled and mashed through a colander; lay a little of it at the bottom of the dish; then put in the steaks very well seasoned; pour the remainder of the batter over them, and bake it.

Beef Steak Pudding.—Prepare a good suet crust, and line a cake-tin with it; put in layers of steak with onions, tomatoes, and mushrooms, chopped fine, a seasoning of pepper, salt and cayenne, and half a cup of water before you close it. Bake from an hour and a half to two hours, according to the size of the pudding and serve very hot.

Black Cap Pudding.—Make a batter with milk, flour and eggs; butter a basin; pour in the batter, and 5 or 6 ounces of well-cleaned currants. Cover it with a cloth well floured, and tie the cloth very tight. Boil nearly one hour. The currants will have settled to the bottom; therefore dish it bottom upwards. Serve with sweet sauce and a little rum.

Oswego Blanc Mange.—Four tablespoonfuls or three ounces of Oswego prepared corn to one quart of milk. Dissolve the corn to some of the milk. Put into the remainder of the milk four ounces of sugar, a little salt, a piece of lemon rind, or cinnamon stick, and heat to *near* boiling. Then add the mixed corn, and boil (stirring it briskly) four minutes; take out the rind, and pour into a mold or cup, and keep until cold. When turned out, pour round it any kind of stewed or preserved fruits, or a sauce of milk and sugar.

Nice Blanc-Mange.—Swell four ounces of rice in water; drain and boil it to a mash in good milk, with sugar, a bit of lemon peel, and a stick of cinnamon. Take care it does not burn, and when quite soft pour it into cups, or into a shape dipped into cold water. When cold turn it out, garnish with currant jelly, or any red preserved fruit. Serve with cream or plain custard.

Boiled Batter Pudding.—Three eggs, one ounce of butter, one pint of milk, three tablespoonfuls of flour, a little salt. Put the flour into a basin, and add sufficient milk to moisten it; carefully rub down all the lumps with a spoon, then pour in the remainder of the milk, and stir in the butter, which should be previously melted; keep beating the mixture, add the eggs and a pinch of salt, and when the batter is quite smooth, put into a well-buttered basin, tie it down very tightly, and put it into boiling water; move the basin about for a few minutes after it is put into the water, to prevent the flour settling in any part, and boil for one hour and a quarter. This pudding may also be boiled in a floured cloth that has been wetted in hot water; it will then take a few minutes less than when boiled in a basin. Send these puddings very quickly to table, and serve with sweet sauce, wine-sauce, stewed fruit, or jam of any kind; when the latter is used, a little of it may be placed round the dish in small quantities, as a garnish.

Bread and Butter Pudding.—Butter a dish well, lay in a few slices of bread and butter, boil one pint of milk, pour out over two eggs well beaten, and then over the bread and butter, bake over half hour.

Simple Bread Pudding.—Take the crumbs of a stale roll, pour over it one pint of boiling milk, and set it by to cool. When quite cold, beat it up very fine with two ounces of butter, sifted sugar sufficient to sweeten it; grate in half a nutmeg, and add a pound of well-washed currants, beat up four eggs separately, and then mix them up with the rest, adding, if desired, a few strips of candied orange peel. All the ingredients must be beaten up together for about half an hour, as the lightness of the pudding depends upon that. Tie it up in a cloth, and boil for an hour. When it is dished, pour a little white wine sauce over the top.

Christmas Plum Pudding.—Suet, chopped small, six ounces; raisins, stoned, etc., eight ounces; bread crumbs, six ounces; three eggs, a wine glass of brandy, a little nutmeg and cinnamon pounded as fine as possible, half a teaspoonful of salt, rather less than half pint milk, fine sugar, four ounces; candied lemon, one ounce; citron half an ounce. Beat the eggs and spice well together; mix the milk by degrees, then the rest of the ingredients. Dip a fine, close, linen cloth into boiling water, and put in a sieve (hair), flour it a little, and tie up close. Put the pudding into a saucepan containing six quarts of boiling water; keep a kettle of boiling water alongside, and fill up as it wastes. Be sure to keep it boiling at least six hours. Serve with any sauce; or arrow-root with brandy.

Christmas Pudding.—Suet 1½ lbs., minced small; currants, 1½ lbs., raisins, stoned, ¼ lb.; sugar, 1 lb.; ten eggs, a grated nutmeg; 2 ozs. citron and lemon peel; 1 oz. of mixed spice, a teaspoonful of grated ginger, ½ lb. of bread crumbs, ½ lb. of flour, 1 pint of milk, and a wine glassful of brandy. Beat first the eggs, add half the milk, beat all together, and gradually stir in all the milk, then the suet, fruit, etc., and as much milk to mix it very thick. Boil in a cloth six or seven hours.

Cottage Pudding.—One pint sifted flour, three tablespoons melted butter, 2 eggs, one cup sweet milk, two teaspoonfuls cream tartar, one teaspoon soda, mix and bake.

Cream Pudding.—Cream, 1 pint; the yolks of seven eggs, seven tablespoonfuls of flour, 2 tablespoonfuls of sugar, salt, and a small bit of soda. Rub the cream with the eggs and flour; add the rest, the milk last, just before baking, and pour the whole into the pudding dish. Serve with sauce of wine, sugar, butter, flavored as you like.

Crumb Pudding.—The yolks and whites of three eggs, beaten separately, one ounce moist sugar, and sufficient bread crumbs to make it into a thick but not stiff mixture; a little powdered cinnamon. Beat all together for five minutes, and bake in a buttered tin. When baked, turn it out of the tin, pour two glasses of boiling wine over it, and serve. Cherries, either fresh or preserved, are very nice mixed in the pudding.

Damson Pudding.—Four or five tablespoonfuls of flour, three eggs beaten, a pint of milk, made into batter. Stone 1½ lbs., of damsons, put them and 6 ozs. of sugar into the batter, and boil in a buttered basin for one hour and a half.

Egg Pudding.—It is made chiefly of eggs. It is nice made thus:—Beat well seven eggs; mix well with 2 ozs. of flour, pint and a half of milk, a little salt; flavor with nutmeg, lemon juice, and orange-flour water. Boil 1¼ hours in a floured cloth. Serve with wine sauce sweetened.

Excellent Family Plum Pudding.—Grate three-quarters of a pound of a stale loaf, leaving out the crusts; chop very fine three-quarters of a pound of firm beef suet (if you wish your pudding less rich, half a pound will do); mix well together with a quarter of a pound of flour; then add a pound of currants, well washed and well dried; half a pound of raisins, stoned, and the peel of a lemon, very finely shred and cut; four ounces of candied peel, either

lemon, orange or citron, or all mingled (do not cut your peel too small or its flavor is lost); six ounces of sugar, a small teaspoonful of salt, three eggs, well beaten; mix all thoroughly together with as much milk as suffices to bring the pudding to a proper consistency, grate in a small nutmeg, and again stir the mixture vigorously. If you choose, add a small glass of brandy. Butter your mold or basin, which you must be sure to fill quite full, or the water will get in and spoil your handiwork; have your pudding cloth scrupulously clean and sweet, and of a proper thickness; tie down securely, and boil for seven or even eight hours.

Extra Pudding.—Cut light bread into thin slices. Form into the shape of a pudding in a dish. Then add a layer of any preserve, then a slice of bread, and repeat till the dish is full. Beat four or five eggs, and mix well with a pint of milk; then pour it over the bread and preserve, having previously dusted the same with a coating of rice flour. Boil twenty-five minutes.

Fig Pudding.—Procure one pound of good figs, and chop them very fine, and also a quarter of a pound of suet, likewise chopped as fine as possible; dust them both with a little flour as you proceed—it helps to bind the pudding together; then take one pound of fine bread crumbs, and not quite a quarter of a pound of sugar; beat two eggs in a teacupful of milk, and mix all well together. Boil four hours. If you choose, serve it with wine or brandy sauce, and ornament your pudding with blanched almonds. Simply cooked, however, it is better where there are children, with whom it is generally a favorite. We forgot to say, flavor with a little allspice or nutmeg, as you like; but add the spice before the milk and eggs.

Gelatine Pudding.—Half box gelatine dissolved in a large half pint boiling water, when cold stir in two teacups sugar, the juice of three lemons, the whites of four eggs beaten to a froth, put this in a mold to get stiff, and with the yolks of these four eggs, and a quart of milk make boiled custard, flavor with vanilla, when cold pour the custard round the mold in same dish.

Gooseberry Pudding.—One quart of scalded gooseberries; when cold rub them smooth with the back of a spoon. Take six tablespoonfuls of the pulp, half a pound of sugar, quarter of a pound of melted butter, six eggs, the rind of two lemons, a handful of grated bread, two tablespoonfuls of brandy. Half an hour will bake it.

Ground Rice Pudding.—Boil one pint of milk with a little piece of lemon peel, mix quarter pound of rice, ground, with half pint milk, two ounces sugar, one ounce butter, add these to the boiling milk. Keep stirring, take it off the fire, break in two eggs, keep stirring, butter a pie dish, pour in the mixture and bake until set.

Ice Pudding.—Put one quart of milk in a stew pan with half pound of white sugar, and stick of vanilla, boil it ten minutes, mix the yolks of ten eggs with a gill of cream, pour in the milk, then put it back again into the stew pan, and stir till it thickens (do not let it boil), strain it into a basin and leave it to cool. Take twelve pounds of ice, add two pounds of salt, mix together, cover the bottom of a pail, place the ice pot in it and build it around with the ice and salt, this done pour the cream into the pot, put on the cover, and do not cease turning till the cream is thick, the mold should be cold, pour in the cream, 3 or 4 pieces of white paper, wetted with cold water, are placed on it before the cover is placed on. Cover with ice till wanted, dip in cold water and turn out, fruit may be put in when put in the mold.

Indian Pudding.—Indian meal, a cupful, a little salt, butter, 1 oz.; molasses 3 ozs., 2 teaspoonfuls of ginger, or cinnamon. Put into a quart of boiling milk. Mix a cup of cold water with it; bake in a buttered dish 50 minutes.

Kidney Pudding.—If kidney, split and soak it, and season that or the meat. Make a paste of suet, flour and milk; roll it, and line a basin with some; put the kidney or steak in, cover with paste, and pinch round the edge. Cover with a cloth and boil a considerable time.

Lemon Dumplings.—Two tablespoonfuls of flour; bread crumbs, ½ lb.; beef suet, 6 ozs.; the grated rind of a large lemon, sugar, pounded, 4 ozs.; 4 eggs well beaten, and strained, and the juice of three lemons strained. Make into dumplings, and boil in a cloth one hour.

Lemon Pudding.—Three tablespoons powdered crackers, eight tablespoons sugar, six eggs, one quart milk, butter size of an egg, the juice of one lemon and grated rind. Stir it first when put in oven.

Macaroni Pudding.—Take an equal quantity of ham and chicken, mince fine, half the quantity of macaroni which must be boiled tender in broth, two eggs beaten, one ounce butter, cayenne pepper and salt to taste, all these ingredients to be mixed thoroughly together, put in molds and boil two hours.

Marrow Pudding.—Pour a pint of cream boiling hot on the crumbs of a penny loaf, or French roll; cut 1 lb. of beef marrow very thin; beat 4 eggs well; add a glass of brandy, with sugar and nutmeg to taste, and mix all well together. It may be either boiled or baked 40 or 50 minutes; cut 2 ozs. of citron very thin, and stick them all over it when you dish it up.

Another way.—Blanch ½ lb. of almonds; put them in cold water all night; next day beat them in a mortar very fine, with orange or rose water. Take the crumbs of a penny loaf, and pour on the whole a pint of boiling cream; while it is cooling, beat the yolks of four eggs, and two whites, 15 minutes; a little sugar and grated nutmeg to your palate. Shred the marrow of the bones, and mix all well together, with a little candied orange cut small; bake, etc.

Meat and Potato Pudding.—Boil some mealy potatoes till ready to crumble to pieces; drain; mash them very smooth. Make them into a thickish batter with an egg or two, and milk, placing a layer of steaks or chops well-seasoned with salt and pepper at the bottom of the baking dish; cover with a layer of batter, and so alternately, till the dish is full, ending with batter at the top. Butter the dish to prevent sticking or burning. Bake of a fine brown color.

Nesselrode Pudding.—Prepare a custard of one pint of cream, half a pint of milk, the yolks of six eggs, half a stick of vanilla, one ounce of sweet almonds, pounded, and half a pound of sugar; put them in a stewpan over a slow fire, and stir until the proper consistence, being careful not to let it boil; when cold, add a wine-glass of brandy; partially freeze, and add two ounces of rasins and half a pound of preserved fruits, cut small. Mix well, and mold. (Basket shape generally used.)

Potato Pudding.—Take ½ lb. of boiled potatoes, 2 ozs. of butter, the yolks and whites of two eggs, a quarter of a pint of cream, one spoonful of white wine, a morsel of salt, the juice and rind of a lemon; beat all to a froth; sugar to taste. A crust or not, as you like. Bake it. If wanted richer, put 3 ozs. more butter, sweetmeats and almonds, and another egg.

Prince of Wales Pudding.—Chop four ounces of apples, the same quantity of bread crumbs, suet, and currants, well washed and picked; two ounces of candied lemon, orange, and citron, chopped fine; five ounces pounded loaf sugar; half a nutmeg, grated. Mix all

together with four eggs. Butter well and flour a tin, put in the mixture, and place a buttered paper on the top, and a cloth over the paper. If you steam it the paper is sufficient. It will take two hours boiling. When you dish it, stick cut blanched almonds on it, and serve with wine sauce.

Pudding.—One cup sugar, half cup milk, one egg, two tablespoons melted butter, two cups flour, two teaspoons baking powder, a little nutmeg, bake in a dish and when sent to the table, put raspberry jam under same with wine sauce.

Baked Pudding.—Three tablespoonfuls of Oswego Prepared Corn to one quart of milk. Prepare, and cook the same as Blanc-Mange. After it is cool, stir up with it *thoroughly* two or three eggs well beaten, and bake half an hour. It is very good.

Boiled Pudding.—Three tablespoonfuls of Oswego Prepared Corn to one quart of milk. Dissolve the corn in some of the milk, and mix with it two or three eggs, well beaten, and a little salt. Heat the remainder of the milk to near boiling, add the above preparation, and boil four minutes, stirring it briskly. To be eaten warm with a sauce. It is delicious.

Queen Pudding.—One pint of bread crumbs, one quart milk, one cup sugar, yolks four eggs, a little butter, bake half an hour, then put over the top a layer of fruit, then white of eggs beaten to a froth with sugar; to be eaten cold with cream.

Plain Rice Pudding.—Wash and pick some rice; throw among it some pimento finely pounded, but not much; tie the rice in a cloth and leave plenty of room for it to swell. When done, eat it with butter and sugar, or milk. Put lemon peel if you please.

It is very good without spice, and eaten with salt and butter.

ANOTHER.—Put into a very deep pan half a pound of rice washed and picked; two ounces of butter, four ounces of sugar, a few allspice pounded, and two quarts of milk. Less butter will do, or some suet. Bake in a slow oven.

Rich Rice Pudding—Boil ½ lb. of rice in water, with a bit of salt, till quite tender; drain it dry; mix it with the yolks and whites of four eggs, a quarter of a pint of cream, with 2 ozs. of fresh butter melted in the latter; 4 ozs. of beef suet or marrow, or veal suet taken from a fillet of veal, finely shred, ¾ lb. of currants, two spoonfuls of brandy, one of peach-water, or ratafia, nutmeg, and a grated lemon peel. When well mixed, put a paste round the edge, and fill the dish. Slices of candied orange, lemon, and citron, if approved. Bake in a moderate oven.

Rice Pudding with Fruit—Swell the rice with a very little milk over the fire; then mix fruit of any kind with it (currants, gooseberries, scalded, pared, and quartered apples, raisins, or black currants); put one egg into the rice to bind it; boil it well, and serve with sugar.

Roman Pudding—Oil a plain tin mold, sprinkle it with vermicelli, line it with a thin paste; have some boiled macaroni ready cut in pieces an inch long; weigh it, and take the same weight of Parmesan cheese, grated; boil a rabbit, cut off all the white meat in slices, as thin as paper, season with pepper, salt, and shalot; add cream sufficient to moisten the whole, put it into the mold, and cover it with paste; bake in a moderate oven for an hour, turn the pudding out of the mold, and serve it with a rich brown gravy.

Sago Pudding—Boil 4 ozs. of sago in water a few minutes; strain, and add milk, and boil till tender. Boil lemon peel and cinnamon in a little milk, and strain it to the sago. Put the whole into a basin; break 8 eggs; mix it well together, and sweeten with moist sugar; add a glass of brandy, and some nutmeg; put puff paste round the rim of the dish, and butter the bottom. Bake three quarters of an hour.

Spanish Pudding—To one pint of water, put two ounces of butter, and a little salt, when it boils add as much flour as will make it the consistency of hasty pudding. Keep it well stirred, after it is taken off the fire and has stood till quite cold, beat it up with three eggs, add a little grated lemon peel and nutmeg, drop the batter with a spoon into the frying pan with boiling lard, fry quickly, put sugar over them when sent to the table.

Suet Dumplings—Shred 1 lb. of suet; mix with 1¼ lbs. flour, 2 eggs beaten separately, a little salt, and as little milk as will make it. Make it into two small balls. Boil 20 minutes. The fat of loins or necks of mutton finely shred makes a more delicate dumpling than suet.

Suet Pudding—Take six spoonfuls of flour, 1 lb. of suet, shred small, 4 eggs, a spoonful of beaten ginger, a spoonful of salt, and a quart of milk. Mix the eggs and flour with a pint of milk very thick, and with the seasoning, mix in the rest of the milk with the suet. Boil two hours.

Tapioca Pudding.—Put ¼ lb. of tapioca into a sauce pan of cold water; when it boils, strain it to a pint of new milk; boil till it soaks up all the milk, and put it out to cool. Beat the yolks of four eggs, and the whites of two, a tablespoonful of brandy, sugar, nutmeg, and 2 ounces of butter. Mix all together; put a puff paste round the dish, and send it to the oven. It is very good boiled with melted butter, wine and sugar.

Vermicelli Pudding.—Boil 4 ounces of vermicelli in a pint of new milk till soft, with a stick or two of cinnamon. Then put in half a pint of thick cream, ¼ lb. of butter, the same of sugar, and the yolks of 4 eggs. Bake without paste in an earthen dish.

Another.—Simmer 2 ounces of vermicelli in a cupful of milk till tender; flavor it with a stick or two of cinnamon or other spice. Beat up three eggs, 1 ounce of sugar, half a pint of milk and a glass of wine. Add to the vermicelli. Bake in a slow oven.

HOW TO PUT UP PICKLES AND MAKE CATSUPS

How to Pickle Beet Roots.—Beet roots are a very pretty garnish for made dishes, and are thus pickled. Boil the roots till they are tender, then take off the skins, cut them in slices, gimp them in the shape of wheels, or what form you please, and put them into a jar. Take as much vinegar as you think will cover them, and boil it with a a little mace, a race of ginger sliced, and a few slices of horseradish. Pour it hot upon your roots and tie them down.

Chow-Chow.—Two quarts of small white onions, two quarts of gherkins, two quarts of string beans, two small cauliflowers, half a dozen ripe, red peppers, one-half pound mustard seed, one-half pound whole pepper, one pound ground mustard, and, as there is nothing so adulterated as ground mustard, it's better to get it at the druggist's; twenty or thirty bay leaves (not bog leaves, as some one of the ladies facetiously remarked), and two quarts of good cider, or wine vinegar. Peel the onions, halve the cucumbers, string the beans, and cut in pieces the cauliflower. Put all in a wooden tray, and sprinkle well with salt. In the morning wash and drain thoroughly, and put all into the cold vinegar, except the red peppers. Let boil twenty

minutes slowly, frequently turning over. Have wax melted in a deepish dish, and, as you fill and cork, dip into the wax. The peppers you can put in to show to the best advantage. If you have over six jars full, it's good to put the rest in a jar and eat from it for every dinner. Some add a little turmeric for the yellow color.

Corn, Green, Pickling.—When the corn is a little past the tenderest roasting ear state, pull it, take off one thickness of the husk, tie the rest of the husk down at the silk end loosely, place the ears in a clean cask compactly together, and put on a brine to cover them of about two-thirds the strength of meat pickle. When ready to use in winter, soak in cold water over night, and if this does not appear sufficient, change the water and freshen still more. Corn, prepared in this way, is excellent, very much resembling fresh corn from the stalk.

Indian Pickle.—One gallon of the best vinegar, quarter of a pound of bruised ginger, quarter of a pound of shalots, quarter of a pound of flour of mustard, quarter of a pound of salt, two ounces of mustard seed, two ounces of turmeric, one ounce of black pepper, ground fine, one ounce of cayenne. Mix all together, and put in cauliflower sprigs, radish pods, French beans, white cabbage, cucumber, onions, or any other vegetable; stir it well two or three days after any fresh vegetable is added, and wipe the vegetable with a dry cloth. The vinegar should not be boiled.

How to Pickle Mushrooms.—Buttons must be rubbed with a bit of flannel and salt; and from the larger take out the *red* inside, for when they are black they will not do, being too old. Throw a little salt over, and put them into a stewpan with some mace and pepper; as the liquor comes out, shake them well, and keep them over a gentle fire till all of it be dried into them again; then put as much vinegar into the pan as will cover them, give it one warm, and turn all into a glass or stone jar. They will keep two years, and are delicious.

Pickle Sauce.—Slice green tomatoes, onions, cabbage, cucumbers, and green peppers. Let all stand covered with salt over night. Wash, drain and chop fine. Be careful to keep as dry as possible. To two quarts of the hash, add four tablespoons of American mustard seed and two of English; two tablespoonfuls ground allspice, one of ground cloves, two teaspoonfuls of ground black pepper, one teaspoonful of celery seed. Cover with sharp vinegar, and boil slowly an hour. Put away in stone jar, and eat when wanted.

Pickled Eggs.—At the season of the year when eggs are plentiful, boil some four or six dozen in a capacious saucepan, until they become quite hard. Then, after carefully removing the shells, lay them in large-mouthed jars, and pour over them scalding vinegar, well seasoned with whole pepper, allspice, a few races of ginger, and a few cloves or garlic. When cold, bung down closely, and in a month they are fit for use. Where eggs are plentiful, the above pickle is by no means expensive, and is a relishing accompaniment to cold meat.

How to Pickle Red Cabbage.—Slice it into a colander, and sprinkle each layer with salt; let it drain two days, then put it into a jar, with boiling vinegar enough to cover it, and put in a few slices of beet-root. Observe to choose the purple red-cabbage. Those who like the flavor of spice will boil some pepper-corns, mustard-seed, or other spice, *whole*, with the vinegar. Califlower in branches, and thrown in after being salted, will color a beautiful red.

ANOTHER.—Choose a sound large cabbage; shred it finely, and sprinkle it with salt, and let it stand in a dish for a day and night. Then boil vinegar (from a pint) with ginger, cloves, and cayenne pepper. Put the cabbage into jars, and pour the liquor upon it when cold.

Spiced Tomatoes.—Eight pounds tomatoes, four pounds of sugar, one quart vinegar, one tablespoon each of cloves, cinnamon and allspice, make a syrup of the sugar and vinegar. Tie the spice in a bag and put in syrup, take the skins off the tomatoes, and put them in the syrup, when scalded through skim them out and cook away one-half, leave the spices in, then put in your tomatoes again and boil until the syrup is thick.

Tomato Lilly.—Prepare one peck of green tomatoes by slicing and laying them in a jar over night, with a little salt, than chop them and cook in water until you think them sufficiently tender then take them up in a colander and drain nicely, then take two large cabbages, chop and cook same as tomatoes, then chop six green peppers and add one quart vinegar, put all in kettle together and boil a short time; add fresh vinegar and spice with one ounce each cinnamon and cloves, one pound sugar and half pint molasses. Onions can be used instead of cabbage if preferred.

How to Pickle Walnuts.—When a pin will go into them, put a brine of salt and water boiled, and strong enough to bear an egg, being quite cold first. Let them soak six days; then change the brine, let them stand six more; then drain, and pour over them in a jar a pickle of the best vinegar, with plenty of pepper, pimento, ginger, mace, cloves, mustard-seed and horseradish; all boiled together, but cold. To every hundred of walnuts put six spoonfuls of mustard-seed, and two or three heads of garlic or shalot, but the latter is least strong. In this way they will be good for several years, if closely covered. They will not be fit to eat under six months. This pickle makes good ketchup.

A Good Ketchup.—Boil one bushel of tomatoes until soft enough to rub through a sieve. Then add to the liquid a half gallon of vinegar, 1½ pints salt, 2 ounces of cloves, ¼ pound allspice, 3 ounces good cayenne pepper, five heads of garlic, skinned and separated, 1 pound of sugar. Boil slowly until reduced to one-half. It takes about one day. Set away for a week, boil over once, and, if too thick, thin with vinegar; bottle and seal as for chow-chow.

How to Keep Ketchup Twenty Years.—Take a gallon of strong stale beer, 1 lb. of anchovies, washed from the pickle; 1 lb. of shalots, ½ oz. of mace, ½ oz. of cloves, ¼ oz. whole pepper, ½ oz. of ginger, 2 quarts of large mushroom flaps, rubbed to pieces; cover all close, and simmer till it is half wasted, strain, cool, then bottle. A spoonful of this ketchup is sufficient for a pint of melted butter.

Mushroom Ketchup.—Sprinkle mushroom flaps, gathered in September, with common salt, stir them occasionally for two or three days; then lightly squeeze out the juice, and add to each gallon bruised cloves and mustard seed, of each, half an ounce; bruised allspice, black pepper, and ginger, of each, one ounce; gently heat to the boiling point in a covered vessel, macerate for fourteen days, and strain; should it exhibit any indication of change in a few weeks, bring it again to the boiling point, with a little more spice.

Oyster Ketchup:—Beard the oysters; boil them up in their liquor; strain, and pound them in a mortar; boil the beards in spring water, and strain it to the first oyster liquor; boil the pounded oysters in the mixed liquors, with beaten mace and pepper. Some add a very little mushroom ketchup, vinegar, or lemon-juice; but the less the natural flavor is overpowered the better; only spice is necessary for its preservation. This oyster ketchup will

keep perfectly good longer than oysters are ever out of season.

Tomato Ketchup.—Put them over the fire crushing each one as you drop it into the pot; let them boil five minutes; take them off, strain through a colander, and then through a sieve, get them over the fire again as soon as possible, and boil down two-thirds, when boiled down add to every gallon of this liquid one ounce of cayenne pepper, one ounce of black pepper, one pint vinegar, four ounces each of cinnamon and mace, two spoonfuls salt.

Very Fine Walnut Ketchup.—Boil a gallon of the expressed juice of green tender walnuts, and skim it well; then put in 2 lbs. of anchovies, bones and liquor, 2 lbs. shalots, 1 oz. each of cloves, mace, pepper, and one clove of garlic. Let all simmer till the shalots sink; then put the liquor into a pan till cold; bottle and divide the spice to each. Cork closely, and tie a bladder over. It will keep twenty years, but is not good the first. Be very careful to express the juice at home; for it is rarely unadulterated, if bought.

HOW TO ROAST, BOIL, OR BROIL:

POULTRY

How to Roast Chickens.—Pluck carefully, draw and truss them, and put them to a good fire; singe, dust, and baste them with butter. Cover the breast with a sheet of buttered paper; remove it ten minutes before it is enough; that it may brown. A chicken will take 15 to 20 minutes. Serve with butter and parsley.

How to Boil Chickens.—Fasten the wings and legs to the body by threads tied round. Steep them in skim milk two hours. Then put them in cold water, and boil over a slow fire. Skim clean. Serve with white sauce or melted butter sauce, or parsley and butter.—Or melt 1 oz. of butter in a cupful of milk; add to it the yolk of an egg beat up with a little flour and cream; heat over the fire, stirring well.

Geese (a la mode).—Skin and bone the goose; boil and peel a dried tongue, also a fowl; season with pepper, salt and mace, and then roll it round the tongue; season the goose in the same way, and lay the fowl and tongue on the goose, with slices of ham between them. Beef marrow rolled between the fowl and the goose, will greatly enrich it. Put it all together in a pan, with two quarts of beef gravy, the bones of the goose and fowl, sweet herbs and onion; cover close, and stew an hour slowly; take up the goose; skim off the fat, strain, and put in a glassful of good port wine, two tablespoonfuls of ketchup, a veal sweetbread cut small, some mushrooms, a piece of butter rolled in flour, pepper and salt; stew the goose half an hour longer; take up and pour the ragout over it. Garnish with lemon.

How to Roast Pigeons.—Take a little pepper and salt, a piece of butter, and parsley cut small; mix and put the mixture into the bellies of the pigeons, tying the necks tight; take another string; fasten one end of it to their legs and rumps, and the other to a hanging spit, basting them with butter; when done, lay them in a dish, and they will swim with gravy.

How to Boil Pigeons.—Wash clean; chop some parsley small; mix it with crumbs of bread, pepper, salt and a bit of butter; stuff the pigeons, and boil 15 minutes in some mutton broth or gravy. Boil some rice soft in milk; when it begins to thicken, beat the yolks of two or three eggs, with two or three spoonfuls of cream, and a little nutmeg; mix well with a bit of butter rolled in flour.

How to Broil Pigeons.—After cleaning, split the backs, pepper and salt them, and broil them very nicely; pour over them either stewed or pickled mushrooms, in melted butter, and serve as hot as possible.

Scalloped Cold Chickens.—Mince the meat very small, and set it over the fire, with a scrape of nutmeg, a little pepper and salt, and a little cream, for a few minutes. put it into the scallop shells, and fill them with crumbs of bread, over which put some bits of butter, and brown them before the fire. Veal and ham eat well done the same way, and lightly covered with crumbs of bread, or they may be put on in little heaps.

How to Roast Turkey.—The sinews of the legs should be drawn whichever way it is dressed. The head should be twisted under the wing; and in drawing it, take care not to tear the liver, nor let the gall touch it.

Put a stuffing of sausage-meat; or, if sausages are to be served in a dish a bread stuffing. As this makes a large addition to the size of the bird, observe that the heat of the fire is constantly to that part; for the breast is often not done enough. A little strip of paper should be put on the bone to hinder it from scorching while the other parts roast. Baste well and froth it up. Serve with gravy in the dish, and plenty of bread-sauce in a sauce-tureen. Add a few crumbs, and a beaten egg to the stuffing of sausage-meat.

SAUCES FOR MEATS, FISH, ETC.

Anchovy Sauce.—Chop one or two anchovies, without washing, put to them some flour and butter, and a little water; stir it over the fire till it boils once or twice. If the anchovies are good, they will dissolve.

Essence of Anchovies.—Take two dozen of anchovies, chop them, and without the bone, but with some of their liquor strained, add to them sixteen large spoonfuls of water; boil gently till dissolved, which will be in a few minutes—when cold, strain and bottle it.

Apple Sauce.—Pare, core, and quarter half a dozen good sized apples, and throw them into cold water to preserve their whiteness. Boil them in a saucepan till they are soft enough to mash—it is impossible to specify any particular time, as some apples cook much more speedily than others. When done, bruise them to a pulp, put in a piece of butter as large as a nutmeg, and sweeten them to taste. Put into saucepan only sufficient water to prevent them burning. Some persons put the apples in a stone jar placed in boiling water; there is then no danger of their catching.

Apple Sauce for Goose or Roast Pork.—Pare, core, and slice some apples, and put them in a strong jar, into a pan of water. When sufficiently boiled, bruise to a pulp, adding a little butter, and a little brown sugar.

A Substitute for Cream.—Beat up the whole of a fresh egg in a basin, and then pour boiling tea over it gradually to prevent its curdling; it is difficult from the taste, to distinguish it from rich cream.

Bechamel Sauce.—Put a few slices of ham into a stew-pan, a few mushrooms, two or three shalots, two cloves, also a bay leaf and a bit of butter. Let them stand a few hours. Add a little water, flour and milk or cream; simmer forty minutes. Scalded parsley, very fine may be added.

Bread Sauce.—Break three-quarters of a pound of stale bread into small pieces; carefully excluding any

crusty and outside bits, having previously simmered till quite tender, an onion, well peeled and quartered in a pint of milk. Put the crumbs into a very clean saucepan, and, if you like the flavor, a small teaspoonful of sliced onion, chopped, or rather minced, as finely as possible. Pour over the milk, taking away the onion simmered in it, cover it up, and let it stand for an hour to soak. Then, with a fork, beat it quite smooth, and seasoned with a very little powdered mace, cayenne and salt to taste, adding one ounce of butter; give the whole a boil, stirring all the time, and it is ready to serve. A small quantity of cream added at the last moment, makes the sauce richer and smoother. Common white pepper may take the place of cayenne, a few peppercorns may be simmered in the milk, but they should be extracted before sending to table.

Bread Sauce.—Grate some old bread into a basin; pour boiling new milk over it; add an onion with five cloves stuck in it, with pepper and salt to taste. Cover it and simmer in a slow oven. When enough, take out the onion and cloves; beat it well, and add a little melted butter. The addition of cream very much improves this sauce.

Caper Sauce.—Melt some butter, chop the capers fine, boil them with the butter. An ounce of capers will be sufficient for a moderate size sauce-boat. Add, if you like, a little chopped parsley, and a little vinegar. More vinegar, a little cayenne, and essence of anchovy, make it suitable for fish.

As a substitute for capers, some use chopped pickled gherkins.

Essence of Celery.—Soak the seeds in spirits of wine or brandy; or infuse the root in the same for 24 hours, then take out, squeezing out all the liquor, and infuse more root in the same liquor to make it stronger. A few drops will flvor broth, soup, etc.

Celery Sauce.—Wash well the inside leaves of three heads of celery; cut them into slices quarter inch thick, boil for six minutes, and drain; take a tablespoonful of flour, two ounces of butter, and a teacupful of cream; beat well, and when warm, put in the celery and stir well over the fire about twelve minutes. The sauce is very goood for boiled fowl, etc.

Cocoa Sauce.—Scrape a portion of the kernel of a Cocoa nut, adding the juice of three lemons, a teaspoonful of the tincture of cayenne pepper, a teaspoonful of shallot vinegar, and half a cupful of water. Gently simmer for a few hours.

Egg Sauce.—Boil two eggs hard, half chop the whites, put in the yolks, chop them together, but not very fine, put them with ¼ lb. of good melted butter.

Egg Sauce.—Four eggs boiled twelve minutes, then lay them in fresh water, cold, pull off the shells, chop whites and yolks separately, mix them lightly, half pint melted butter, made in proportion of quarter pound of butter, to a large tablespoon flour, four of milk and hot water, add powdered mace or nutmeg, to be eaten with pork, boiled, or poultry, use chicken gravy or the water the chicken were boiled in.

Horseradish Sauce.—Perhaps a good receipt for horseradish sauce, which is so excellent with both hot and cold beef, but which we do not always see served up with either. Two tablespoonfuls of mustard, the same of vinegar, three tablespoonfuls of cream or milk and one of pounded white sugar, well beaten up together with a small quantity of grated horseradish. This is, of course, to be served up cold.

Mint Sauce.—Pick, mash and chop fine green spearmint, to two tablespoons of the minced leaves, put eight of vinegar, adding a little sugar. Serve cold.

Mint Sauce.—Wash fresh gathered mint; pick the leaves from the stalks; mince them very fine, and put them into a sauce-boat with a teaspoonful of sugar and four tablespoonfuls of vinegar. It may also be made with dried mint or with mint vinegar.

Onion Sauce.—Peel the onions, and boil them tender; squeeze the water from them, then chop them, and add to them butter that has been melted, rich and smooth, as will be hereafter directed, but with a little good milk instead of water; boil it up once, and serve it for boiled rabbits, partridge, scrag, or knuckle of veal, or roast mutton. A turnip boiled with the onions makes them milder.

Quin's Fish Sauce.—Half a pint of mushroom pickle, the same of walnut, six long anchovies pounded, six cloves of garlic, three of them pounded; half a spoonful of cayenne pepper; put them into a bottle, and shake well before using. It is also good with beefsteaks.

Sauce for Cold Partridges, Moor-Game, Etc.—Pound four anchovies and two cloves of garlic in a mortar; add oil and vinegar to the taste. Mince the meat, and put the sauce to it as wanted.

Sauce for Ducks.—Serve a rich gravy in the dish; cut the breast into slices, but don't take them off; cut a lemon, and put pepper and salt on it, then squeeze it on the breast, and pour a spoonful of gravy over before you help.

Sauce for Fowl of any Sort.—Boil some veal gravy, pepper, salt, the juice of a Seville orange and a lemon, and a quarter as much of port wine as of gravy; pour it into the dish or a boat.

Sauce for Hot or Cold Roast Beef.—Grate, or scrape very fine, some horseradish, a little made mustard, some pounded white sugar and four large spoonfuls of vinegar. Serve in a saucer.

Sauce for Salmon.—Boil a bunch of fennel and parsley chop them small, and put into it some good melted butter. Gravy sauce should be served with it; put a little brown gravy into a saucepan, with one anchovy, a teaspoonful of lemon pickle, a tablespoonful of walnut pickle, two spoonfuls of water in which the fish was boiled, a stick of horseradish, a little browning, and salt; boil them four minutes; thicken with flour and a good lump of butter, and strain through a hair sieve.

Sauce for Savoury Pies.—Take some gravy, one anchovy, a sprig of sweet herbs, an onion, and a little mushroom liquor; boil it a little, and thicken it with burnt butter, or a bit of butter rolled in flour; add a little port wine, and open the pie, and put it in. It will serve for lamb, mutton, veal or beef pies.

Sauce for a Turkey.—Open some oysters into a basin, and wash them in their own liquor, and as soon as settled pour into a saucepan; add a little white gravy, a teaspoonful of lemon pickle; thicken with flour and butter; boil it three or four minutes; add a spoonful of thick cream, and then the oysters; shake them over the fire till they are hot, but do not let them boil.

Sauce for Wild Fowl.—Simmer a teacupful of port wine, the same quantity of good meat gravy, a little shalot, a little pepper, salt, a grate of nutmeg and a bit of mace, for ten minutes; put in a bit of butter and flour, give it all one boil, and pour it through the birds. In general they are not stuffed as tame, but may be done so if liked.

French Tomato Sauce.—Cut ten or a dozen tomatoes into quarters, and put them into a saucepan, with four onions, sliced, a little parsley, thyme, a clove, and a quarter of a pound of butter; then set the saucepan on the fire,

stirring occasionally for three-quarters of an hour; strain the sauce through a horse-hair sieve, and serve with the directed articles.

Tomato Sauce.—Take 12 tomatoes, very red and ripe; take off the stalks, take out the seeds, and press out the water. Put the expressed tomatoes into a stewpan, with 1½ ozs. of butter, a bay leaf, and a little thyme; put it upon a moderate fire, stir it into a pulp; put into it a good cullis, or the top of broth, which will be better. Rub it through a search, and put it into a stewpan with two spoonfuls of cullis; put in a little salt and cayenne.

ANOTHER.—Proceed as above with the seeds and water. Put them into a stewpan, with salt and cayenne, and three tablespoonfuls of beef gravy. Set them on a slow stove for an hour, or till properly melted. Strain, and add a little good stock; and simmer a few minutes.

White Sauce.—One pound of knuckle of veal, or any veal trimmings, or cold white meat, from which all brown skin has been removed; if meat has been cooked, more will be required. It is best to have a little butcher's meat fresh, even if you have plenty of cold meat in the larder; any chicken bones greatly improve the stock. This should simmer for five hours, together with a little salt, a dozen white peppercorns, one or two small onions stuck with cloves, according to taste, a slice or two of lean ham, and a little shred of celery and a carrot (if in season) in a quart of water. Strain it, and skim off all the fat; then mix one dessert-spoonful of flour in a half pint of cream; or, for economy's sake, half milk and half cream, or even all good new milk; add this to the stock, and if not salt enough, cautiously add more seasoning. Boil all together very gently for ten minutes, stirring all the time, as the sauce easily burns and very quickly spoils. This stock, made in large quantities, makes white soup; for this an old fowl, stewed down, is excellent, and the liquor in which a young turkey has been boiled is as good a foundation as can be desired.

Economical White Sauce.—Cut up fine one carrot, two small onions, and put them into a stewpan with two ounces of butter, and simmer till the butter is nearly absorbed. Then mix a small teacupful of flour in a pint of new milk, boil the whole quietly till it thickens, strain it, soason with salt and white pepper or cayenne, and it is ready to serve. Or mix well two ounces of flour with one ounce of butter; with a little nutmeg, pepper and salt; add a pint of milk, and throw in a strip of lemon peel; stir well over the fire till quite thick, and strain.

Wine Sauce.—One and ½ cups sugar, three quarters cup of wine, a large spoonful flour, and a large piece of butter.

HOW TO MAKE SOUPS . . . AND BROTHS

Artichoke Soup.—Take Jerusalem artichokes according to the quantity of soup required to be made, cut them in slices, with a quarter of a pound of butter, two or three onions and turnips, sliced into a stewpan, and stew over a very slow fire till done enough, and thin it with good veal stock. Just before you serve, at the last boil, add a quarter of a pint of good cream. This is an excellent soup. Season to taste with a little salt and cayenne. As it is necessary to vary soups, we shall give you a few to choose from according to season and taste. All brown soups must be clear and thin, with the exception of mock turtle, which must be thickened with flour first browned with butter in a stewpan. If the flour is added without previous browning, it preserves a raw taste that by no means improves the flavor.

Asparagus Soup.—Three or four pounds of veal cut fine, a little salt pork, two or three bunches of asparagus and three quarts of water. Boil one-half of the asparagus with the meat, leaving the rest in water until about twenty minutes before serving; then add the rest of the asparagus and boil just before serving; add one pint of milk; thicken with a little flour, and season. The soup should boil about three hours before adding the last half of the asparagus.

Beef Broth.—Put two pounds of lean beef, one pound of scrag of veal, one pound of scrag of mutton, sweet herbs, and ten peppercorns, into a nice tin saucepan, with five quarts of water; simmer to three quarts, and clear from the fat when cold. Add one onion, if approved.

Soup and broth made of different meats are more supporting, as well as better flavored.

To remove the fat, take it off, when cold, as clean as possible; and if there be still any remaining, lay a bit of clean blotting or cap paper on the broth when in the basin, and it will take up every particle.

Beef Soup.—Cut all the lean off the shank, and with a little beef suet in the bottom of the kettle, fry it to a nice brown; put in the bones and cover with water; cover the kettle closely; let it cook slowly until the meat drops from the bones; strain through a colander and leave it in the dish during the night, which is the only way to get off all the fat. The day it is wanted for the table, fry as brown as possible a carrot, an onion, and a very small turnip sliced thin. Just before taking up, put in half a tablespoonful of sugar, a blade of mace, six cloves, a dozen kernels of allspice, a small tablespoonful of celery seed. With the vegetables this must cook slowly in the soup an hour; then strain again for the table. If you use vermicelli or pearl barley, soak in water.

Dr. Liebig's Beef Tea.—When one pound of lean beef, free from fat, and separated from the bones, in a finely-chopped state in which it is used for mince-meat, or beef-sausages, is uniformly mixed with its own weight of cold water, slowly heated till boiling, and the liquid, after boiling briskly for a minute or two, is strained through the towel from the coagulated albumen and the fibrine, now become hard and horny, we obtain an equal weight of the most aromatic soup, of such strength as cannot be obtained even by boiling for hours from a piece of flesh. When mixed with salt and the other additions by which soup is usually seasoned, and tinged somewhat darker by means of roasted onions, or burnt bread, it forms the very best soup which can, in any way, be prepared from one pound of flesh.

Brown Gravy Soup.—Shred a small plate of onions, put some dripping into a frying-pan and fry the onions till they are of a dark brown; then, having about three pounds of beef cut up in dice, without fat or bone, brown that in a frying-pan. Now get a sauce-pan to contain about a gallon, and put in the onions and meat, with a carrot and a turnip cut small, and a little celery, if you have it; if not, add two seeds of celery; put three quarts, or three and a half quarts of water to this, and stir all together with a little pepper and salt; simmer very slowly, and skim off what rises; in three or four hours the soup will be clear. When served, add a little vermicelli, which should have previously been boiled in water; the liquid should be carefully poured off through a sieve. A large quantity may be made in the same proportions. Of course, the meat and onions must be stirred whilst frying, and constantly turned; they should be of a fine brown, not black, and celery-seed will give a flavor, it is so strong.

Carrot Soup.—Put some beef bones, with four quarts of the liquor in which a leg of mutton or beef has been

boiled, two large onions, a turnip, pepper and salt into a sauce-pan, and stew for three hours. Have ready six large carrots, scraped and cut thin, strain the soup on them, and stew them till soft enough to pulp through a hair sieve or coarse cloth, then boil the pulp with the soup, which is to be as thick as pea-soup. Use two wooden spoons to rub the carrots through. Make the soup the day before it is to be used. Add cayenne. Pulp only the red part of the carrot, and not the yellow.

Clam Soup.—Cut salt pork in very small squares and fry light brown; add one large or two small onions cut very fine, and cook about ten minutes; add two quarts water and one quart of raw potatoes, sliced; let it boil; then add one quart of clams. Mix one tablespoonful of flour with water, put it with one pint of milk, and pour into the soup, and let it boil about five minutes. Butter, pepper, salt. Worcestershire sauce to taste.

Groutons.—These are simply pieces of bread fried brown and crisp, to be used in soups.

Game Soups.—Cut in pieces a partridge, pheasant, or rabbit; add slices of veal, ham, onions, carrots, etc. Add a little water, heat a little on slow fire, as gravy is done; then add some good broth, boil the meat gently till it is done. Strain, and stew in the liquor what herbs you please.

Game Soup.—In the season for game, it is easy to have good game soup at very little expense, and very nice. Take the meat from off the bones of any cold game left, pound it in a mortar and break up the bones, and pour on them a quart of any good broth, and boil for an hour and a half. Boil and mash six turnips, and mix with the pounded meat, and then pass them through a sieve. Strain the broth, and stir in the mixture of meat and turnips which has been strained through the sieve; keep the soup-pot near the fire, but do not let it boil. When ready to dish the soup for table, beat the yolks of five eggs very lightly, and mix with them half a pint of good cream. Set the soup on to boil, and, as it boils, stir in the beaten eggs and cream, but be careful that it does not boil after they are stirred in, as the egg will curdle. Serve hot.

Julienne Soup.—Put a piece of butter the size of an egg into the soup-kettle; stir until melted. Cut three young onions small; fry them a nice brown; add three quarts of good clear beef-stock, a little mace, pepper and salt; let it boil an hour; add three young carrots and three turnips cut small, a stalk of celery cut fine, a pint of French beans, a pint of green peas; let this boil two hours; if not a bright, clear color, add a spoonful of soy. This is a nice summer soup.

Lobster Soup.—One large lobster or two small ones; pick all the meat from the shell and chop fine; scald one quart of milk and one pint of water, then add the lobster, one pound of butter, a teaspoonful of flour, and salt and red pepper to taste. Boil ten minutes and serve hot.

Mock Turtle Soup.—One soup-bone, one quart of turtle beans, one large spoonful of powdered cloves, salt and pepper. Soak the beans over night, put them on with the soup-bone in nearly six quarts of water, and cook five or six hours. When half done, add the cloves, salt and pepper; when done, strain through a colander, pressing the pulp of the beans through to make the soup the desired thickness, and serve with a few slices of hard-boiled egg and lemon sliced very thin. The turtle beans are black and can only be obtained from large groce.

Oyster Soup.—Take one quart of water, one teacup of butter, one pint of milk, two teaspoons of salt, four crackers rolled fine, and one teaspoon of pepper; bring to full boiling heat as soon as possible, then add one quart of oysters; let the whole come to boiling heat quickly and remove from the fire.

Oyster Soup.—Pour one quart of boiling water into a skillet; then one quart of good rich milk; stir in one teacup of rolled cracker crumbs; season with pepper and salt to taste. When all come to boil, add one quart of good fresh oysters; stir well, so as to keep from scorching; then add a piece of good sweet butter about the size of an egg; let it boil up once, then remove from the fire immediately; dish up and send to table.

Ox Tail Soup.—Take two ox tails and two whole onions, two carrots, a small turnip, two tablespoonfuls of flour, and a little white pepper; add a gallon of water, let all boil for two hours; then take out the tails and cut the meat into small pieces, return the bones to the pot for a short time, boil for another hour, then strain the soup, and rinse two spoonfuls of arrow-root to add to it with the meat cut from the bones, and let all boil for a quarter of an hour.

Scotch Broth.—Take one-half teacup barley, four quarts cold water; bring this to the boil and skim; now put in a neck of mutton and boil again for half an hour, skim well the sides of the pot also; have ready two carrots, one large onion, a small head of cabbage, one bunch parsley, one sprig of celery top; chop all these fine, add your chopped vegetables, pepper and salt to taste. This soup takes two hours to cook.

Soup and Bouille.—Stew a brisket of beef with some turnips, celery, leeks and onions, all finely cut. Put the pieces of beef into the pot first, then the roots, and half a pint of beef gravy, with a few cloves. Simmer for an hour. Add more beef gravy, and boil gently for half an hour.

Royal Soup.—Take a scrag or knuckle of veal, slices of undressed gammon of bacon, onions, mace, and a small quantity of water; simmer till very strong, and lower it with a good beef broth made the day before, and stewed till the meat is done to rags. Add cream, vermicelli, almonds and a roll.

Various Soups.—Good soups may be made from fried meats, where the fat and gravy are added to the boiled barley; and for that purpose, fat beef steaks, pork steaks, mutton chops, etc. should be preferred, as containing more of the nutritious principle. When nearly done frying, add a little water, which will produce a gravy to be added to the barley broth; a little wheat flour should be dredged in also; a quantity of onions, cut small, should also be fried with the fat, which gives the soup a fine flavor, assisted by seasoning, etc.

Soups may be made from broiled meats. While the fat beef steak is doing before the fire, or mutton chop, etc., save the drippings on a dish, in which a little flour, oatmeal, with cut onions, etc., are put.

Grand Consomme Soup.—Put into a pot two knuckles of veal, a piece of a leg of beef, a fowl, or an old cock, a rabbit, or two old partridges; add a ladleful of soup, and stir it well; when it comes to a jelly, put in a sufficient quantity of stock, and see that it is clear; let it boil, skimming and refreshing it with water; season it as the above; you may add, if you like, a clove of garlic; let it then boil slowly or simmer four or five hours; put it through a towel, and use it for mixing in sauces or clear soups.

Julienne Soup.—Take some carrots and turnips, and turn them riband-like; a few heads of celery, some leeks and onions, and cut them in lozenges, boil them till they are cooked, then put them into clear gravy soup. Brown thickening.—N. B. You may, in summer time, add green peas, asparagus tops, French beans, some lettuce or sorrel.

Soup and Soups.—It is not at all necessary to keep a special fire for five hours every day in order to have at dinner a first course of soup. Nor need a good, savory, nutritious soup for a family of five cost more than 10 cents. There is no use hurling any remarks about "swill-pails." Every housekeeper who knows anything of her kitchen and dining-room affairs, knows there are usually nice clean fragments of roasts and broils left over, and that broth in which lamb, mutton, beef, and fowls have been boiled is in existence, and that twice a week or so there is a bowl of drippings from roasted meats. All these when simmered with rice, macaroni, or well-chosen vegetables, and judiciously seasoned, make good soups, and can be had without a special fire, and without sending to the butcher's for special meats. We name a few of the soups we make, and beg leave to add that they are pretty well received. We make them in small quantities, for nobody with three additional courses before him wants to eat a *quart* of soup, you know!

1.—One pint of good gravy, three cups boiling water, a slice of turnip, and half an onion cut in small bits, two grated crackers. Simmer half an hour.

2.—On ironing day cut off the narrow ends from two or three sirloin steaks, chop them into morsels and put in a stewpan with a little salt, a tablespoonful of rice and a pint of cold water, and simmer slowly for three hours. Then add water enough to make a quart of soup, a tablespoonful of tomato catsup, and a little browned flour mixed with the yolk of an egg.

3.—Pare and slice very thin four good sized potatoes, pour over them two cups of boiling water, and simmer gently until the potatoes are dissolved. Add salt, a lump of nice butter, and a pint of sweet milk with a dust of pepper. Let it boil up once, and serve. You wouldn't think it, but it is real good, and children cry for it.

4.—One pint meat broth, one pint boiling water, slice in an onion, or a parsnip, or half a turnip—or all three if liked—boil until the vegetables are soft, add a little salt if needed, and a tablespoonful of Halford sauce.

5.—Let green corn, in the time of green corn, be grated, and to a pint of it put a pint of rich milk, a pint of water, a little butter, salt and pepper. Boil gently for fifteen or twenty minutes.

Split Pea Soup.—Take beef bones or any cold meats, and two pounds of corned pork; pour on them a gallon of hot water, and let them simmer three hours, removing all the scum. Boil one quart of split peas two hours, having been previously soaked, as they require much cooking: strain off the meat and mash the peas into the soup; season with black pepper, and let it simmer one hour; fry two or three slices of bread a nice brown, cut into slices and put into the bottom of the tureen, and on them pour the soup.

Tomato Soup.—Boil chicken or beef four hours; then strain; add to the soup one can of tomatoes and boil one hour. This will make four quarts of soup.

Tomato Soup without Meat.—One quart of tomatoes, one quart of water, one quart of milk. Butter, salt and pepper to taste. Cook the tomatoes thoroughly in the water, have the milk scalding (over water to prevent scorching). When the tomatoes are done add a large teaspoonful of salaratus, which will cause a violent effervescence. It is best to set the vessel in a pan before adding it to prevent waste. When the commotion has ceased add the milk and seasoning. When it is possible it is best to use more milk than water, and cream instead of butter. The soup is eaten with crackers and is by some preferred to oyster soup. This recipe is very valuable for those who keep abstinence days.

Turkey Soup.—Take the turkey bones and cook for one hour in water enough to cover them; then stir in a little dressing and a beaten egg. Take from the fire, and when the water has ceased boiling add a little butter with pepper and salt.

Veal Gravy.—Put in the stewpan bits of lard, then a few thin slices of ham, a few bits of butter, then slices of fillet of veal, sliced onions, carrots, parsnips, celery, a few cloves upon the meat, and two spoonfuls of broth; set it on the fire till the veal throws out its juices; then put it on a stronger fire till the meat catches to the bottom of the pan, and is brought to a proper color; then add a sufficient quantity of light broth, and simmer it upon a slow fire till the meat is well done. A little thyme and mushrooms may be added. Skim and sift it clear for use.

Veal Soup.—To a knuckle of veal of 6 pounds, put 7 or 9 quarts of water; boil down one-half; skim it well. This is better to do the day before you prepare the soup for the table. Thicken it by rubbing flour, butter, and water together. Season with salt and mace. When done and one pint new milk; let it just come to a boil; then pour into a soup dish, lined with macaroni well cooked.

Vegetable Soup.—Pare and slice five or six cucumbers; and add to these as many cos lettuces, a sprig or two of mint, two or three onions, some pepper and salt, a pint and a half of young peas and a little parsley. Put these, with half a pound of fresh butter, into a saucepan, to stew in their own liquor, near a gentle fire, half an hour. then pour two quarts of boiling water to the vegetables, and stew them two hours; rub down a little flour into a teacupful of water, boil it with the rest twenty minutes, and serve it.

Vermicelli Soup.—Boil tender ½ lb. of vermicelli in a quart of rich gravy; take half of it out, and add to it more gravy; boil till the vermicelli can be pulped through a sieve. To both put a pint of boiling cream, a little salt, and ¼ lb. of Parmesan cheese. Serve with rasped bread. Add two or three eggs, if you like.

Brown Vermicelli Soup.—Is made in the same manner, leaving out the eggs and cream, and adding one quart of strong beef gravy.

HOW TO COOK VEGETABLES

How to Boil Artichokes.—If the artichokes are very young, about an inch of the stalk can be left; but should they be full grown, the stalk must be cut quite close. Wash them well and put them into strong salt and water to soak for a couple of hours. Pull away a few of the lower leaves, and snip off the points of all. Fill a saucepan with water, throw some salt into it, let it boil up, and then remove the scum from the top; put the artichokes in, with the stalks upward, and let them boil until the leaves can be loosened easily; this will take from thirty to forty minutes, according to the age of the artichokes. The saucepan should not be covered during the time they are boiling. Rich melted butter is always sent to the table with them.

New Mode to Dress Asparagus.—Scrape the grass, tie it up in bundles, and cut the ends off an even length. Have ready a saucepan, with boiling water, and salt in proportion of a heaped saltspoonful to a quart of water. Put in the grass, standing it on the bottom with the green heads out of the water, so that they are not liable to be boiled off. If the water boils too fast, dash in a little cold water. When the grass has boiled a quarter of an hour it will be sufficiently done; remove it from the saucepan, cut off the ends down to the edible part, arrange it on a dish in

a round pyramid, with the heads toward the middle of the dish, and boil some eggs hard; cut them in two, and place them round the dish quite hot. Serve melted butter in a sauce-tureen; and those who like it rub the yoke of a hard egg into the butter, which makes a delicious sauce to the asparagus.

How to Boil Asparagus.—Scrape the asparagus; tie them in small bunches; boil them in a large pan of water with salt in it; before you dish them up toast some slices of bread, and then dip them in the boiling water; lay the asparagus on the toasts; pour on them rich melted butter, and serve hot.

Ragout of Asparagus.—Cut small asparagus like green peas; the best method is to break them off first; then tie them in small bunches to cut, boil them till half done; then drain them, and finish with butter, a little broth, herbs, two cloves, and a sprig of savory. When done, take out the cloves, herbs, etc., mix two yolks of eggs, with a little flour, and broth, to garnish a first course dish. But if you intend to serve it in a second course mix cream, a little salt, and sugar.

French Beans, a la Creme.—Slice the beans and boil them in water with salt. When soft, drain. Put into a stewpan two ounces of fresh butter, the yolks of three eggs, beaten up into a gill of cream, and set over a slow fire. When hot, add a spoonful of vinegar, simmer for five minutes.

To Preserve French Beans for Winter.—Pick them young, and throw into a little wooden keg a layer of them three inches deep; then sprinkle them with salt, put another layer of beans, and do the same as high as you think proper, alternately with salt, but not too much of this. Lay over them a plate, or cover of wood, that will go into the keg, and put a heavy stone on it. A pickle will rise from the beans and salt. If they are too salt, the soaking and boiling will not be sufficient to make them pleasant to the taste.

Stewed Beans.—Boil them in water in which a lump of butter has been placed; preserve them as white as you can; chop a few sweet herbs with some parsley very fine; then stew them in a pint of the water in which the leaves have been boiled, and to which a quarter of a pint of cream has been added; stew until quite tender, then add the beans, and stew five minutes, thickening with butter and flour.

How to Boil Broccoli.—Peel the thick skin of the stalks, and boil for nearly a quarter of an hour, with a little bit of soda, then put in salt, and boil five minutes more. Broccoli and savoys taste better when a little bacon is boiled with them.

How to boil Cabbage.—Cut off the outside leaves, and cut it in quarters; pick it well, and wash it clean; boil it in a large quantity of water, with plenty of salt in it; when it is tender and a fine light green, lay it on a sieve to drain, but do not squeeze it, it will take off the flavor; have ready some very rich melted butter, or chop it with cold butter. Greens must be boiled the same way. Strong vegetables like turnips and cabbage, etc., require much water.

Cabbage Salad.—Three eggs well beaten, one cup of vinegar, two tablespoons of mustard, salt and pepper, one tablespoon of butter; let this mixture come to a boil, when cool add seven tablespoons of cream, half a head of cabbage shaved fine.

How to Boil Cauliflowers.—Strip the leaves which you do not intend to use, and put the cauliflowers into salt and water some time to force out snails, worms, etc. Boil them twelve minutes on a drainer in plenty of water, then add salt, and boil five or six minutes longer. Skim well while boiling. Take out and drain. Serve with melted butter, or a sauce made of butter, cream, pepper and salt.

How to Fry Cauliflowers.—Wash as before. Boil twenty or thirty minutes; cut it into small portions, and cool. Dip the portions twice into a batter made of flour, milk and egg, and fry them in butter. Serve with gravy.

Cucumbers for Immediate Use.—Slice, sprinkle with salt; let them stand several hours, drain, and then put to them sliced onions, vinegar to cover them, and salt, pepper, etc. Cayenne pepper and ground mustard render them wholesome.

Stewed Celery.—Wash and clean six or eight heads of celery, let them be about three inches long; boil tender and pour off all the water; beat the yolks of four eggs, and mix with half a pint of cream, mace and salt; set it over the fire with the celery, and keep shaking until it thickens, then serve hot.

Cold Slaw.—Half a head of cabbage cut very fine, a stalk of celery cut fine—or teaspoon of celery seed—or, a tablespoon of celery essence, four hard-boiled eggs, whites chopped very fine, a teaspoon of mustard, a tablespoon of butter and the yolks of the boiled eggs, salt and pepper, mix well; take an egg well beaten and stir in a cup of boiling vinegar, pour over and cover for a few minutes.

Egg-Plant.—Slice the egg-plant an eighth of an inch in thickness, pare it, and sprinkle salt over it an hour before cooking; then drain off all the water, beat up the yolk of an egg, dip the slices first in the egg, and then in crumbs of bread; fry a nice brown. Serve hot, and free from fat.

How to Cook Egg-Plant.—Cut the egg-plant in slices half an inch thick, sprinkle a thin layer of salt between the slices, and lay them one over the other; and let them stand an hour. This draws out the bitter principal from the egg-plant, and also a part of the water. Then lay each slice in flour, put in hot fat and fry it brown on both sides. Or boil the egg-plant till tender, remove the skin, mash fine, mix with an equal quantity of bread or cracker crumbs, and salt, pepper and bake half an hour. This makes a delightful dish, and a very digestible one, as it has so little oily matter in it.

How to Broil Mushrooms.—Pare some large, open mushrooms, leaving the stalks on, paring them to a point; wash them well, and turn them on the back of a drying sieve to drain. Put into a stewpan two ounces of butter, some chopped parsley, and shalots, then fry them for a minute on the fire; when melted, place your mushroom stalks upward on a saucepan, then pour the butter and parsley over all the mushrooms; pepper and salt them well with black pepper put them in the oven to broil; when done, put a little good stock to them, give them a boil and dish them, pour the liquor over them, adding more gravy, but let it be put in hot.

How to Pickle Onions.—Take two quarts of the small white round onions. Scald them in very strong salt and water. Just let them boil. Strain, peel, place in jars; cover them with the best white wine vinegar. In two days pour all the vinegar off, and boil it half an hour, with a teaspoonful of cayenne pepper, 1 oz. of ginger, 16 cloves, ½ oz. ground mustard, 2 ozs. mustard seed. When cold, pour upon the onions. Some persons prefer the vinegar boiling hot.

How to Fricassee Parsnips.—Boil in milk till they are soft, then cut them lengthwise in bits two or three inches long, and simmer in a white sauce, made of two

spoonfuls of broth, and a bit of mace, half a cupful of cream, a bit of butter, and some flour, pepper and salt.

How to Mash Parsnips.—Boil them tender, scrape, then mash them in a stewpan with a little cream, a good piece of butter, and pepper and salt.

How to Stew Parsnips.—Boil them tender; scrape and cut into slices; put them into a saucepan with cream enough; for sauce, a piece of butter rolled in flour, and a little salt; shake the saucepan often, when the cream boils, pour them into a dish.

How to Boil Peas.—Peas should not be shelled long before they are wanted, nor boiled in much water; when the water boils, put them in with a little salt (some add a little loaf sugar, but if they are sweet of themselves, it is superfluous); when the peas begin to dent in the middle they are boiled enough. Strain, and put a piece of butter in the dish, and stir. A little mint should be boiled with the peas.

Puree of Potatoes.—This differs from mashed potatoes only in the employment of more milk and butter, and in the whole being carefully reduced to a perfectly smooth, thick, cream-like mixture. Where economy is a great object, and where rich dishes are not desired, the following is an admirable mode of mashing potatoes: Boil them till thoroughly done, having added a handful of salt to the water, then dry them well, and with two forks placed back to back beat the whole up until no lumps are left. If done rapidly, potatoes thus cooked are extremely light and digestible.

How to Boil Potatoes.—Boil in a saucepan without lid, with only sufficient water to cover them; more would spoil them, as the potatoes contain much water, and it requires to be expelled. When the water nearly boils pour it off, and add cold water, with a good portion of salt. The cold water sends the heat from the surface to the center of the potato, and makes it mealy. Boiling with a lid on often produces cracking.

New Potatoes.—Should be cooked soon after having been dug; wash well, and boil.

The Irish, who boil potatoes to perfection, say they should always be boiled in their *jackets;* as peeling them for boiling is only offering a premium for water to run through the potato, and rendering it sad and unpalatable; they should be well washed, and put into cold water.

New Potatoes.—Have them as freshly dug as may be convenient; the longer they have been out of the ground the less well-flavored they are. Well wash them, rub off the skins with a coarse cloth or brush, and put them into boiling water, to which has been added salt, at the rate of one heaped teaspoonful to two quarts. Let them boil till tender—try them with a fork; they will take from ten or fifteen minutes to half an hour, according to size. When done, pour away the water, and set by the side of the fire, with the lid aslant. When they are quite dry, have ready a hot vegetable dish, and in the middle of it put a piece of butter the size of a walnut—some people like more—heap the potatoes round it and over it, and serve immediately. We have seen very young potatoes, no larger than a marble, parboiled, and then fried in cream till they are of a fine auburn color; or else, when larger, boiled till nearly ready, then sliced and fried in cream, with pepper, salt, a very little nutmeg, and a flavoring of lemon juice. Both make pretty little supper dishes.

Potatoes Roasted under the Meat.—These are very good; they should be nicely browned. Half boil large mealy potatoes; put into a baking dish, under the meat roasting; ladle the gravy upon them occasionally. They are best done in an oven.

Potato Ribbons.—Cut the potatoes into slices, rather more than half an inch thick, and then pare round and round in very long ribbons. Place them in a pan of cold water, and a short time before wanted drain them from the water. Fry them in hot lard, or good dripping, until crisp and browned; dry them on a soft cloth, pile them on a hot dish, and season with salt and cayenne.

Potato Rolls.—Boil three lbs. of potatoes; crush and work them with two ozs. of butter and as much milk as will cause them to pass through a colander; take half a pint of yeast and half a pint of warm water; mix with the potatoes; pour the whole upon 5 lbs. of flour; add salt; knead it well; if too thick, put to it a little more milk and warm water; stand before the fire for an hour to rise; work it well and make it into rolls. Bake it half an hour.

Potato Rissoles.—Boil the potatoes floury; mash them, seasoning them with salt and a little cayenne; mince parsley very fine, and work up with the potatoes, adding eschalot, also chopped small. Bind with yolk of egg, roll into balls, and fry with fresh butter over a clear fire. Meat shred finely, bacon or ham may be added.

Potato Sautees.—These are even more agreeable with meat than fried potatoes. Cold boiled potatoes are sliced up, and tossed up in a saucepan with butter, mixed with a little chopped parsley, till they are lightly browned. Pure goose or other dripping is by many cooks preferred to butter for this purpose.

Potato Souffles.—The delicious blistered potatoes are prepared as follows: The potatoes, if small, are simply cut in halves; if large, cut in three or more slices; these are fried in the usual way, but are taken out before they are quite done, and set aside to get cold; when wanted they are fried a second time, but only till they are of a light golden color, not brown.

Tomatoes.—Cut ripe tomatoes into slices, put them in a buttered dish with some bread crumbs, butter, pepper and salt, and bake till slightly brown on top.

Forced Tomatoes.—Prepare the following forcemeat: Two ounces of mushrooms, minced small, a couple of shalots, likewise minced, a small quantity of parsley, a slice of lean ham, chopped fine, a few savory herbs, and a little cayenne and salt. Put all these ingredients into a saucepan with a lump of butter, and stew all together until quite tender, taking care that they do not burn. Put it by to cool, and then mix with them some bread crumbs and the well beaten yolks of two eggs. Choose large tomatoes, as nearly of the same size as possible, cut a slice from the stalk end of each, and take out carefully the seeds and juice; fill them with the mixture which has already been prepared, strew them over with bread and some melted butter, and bake them in a quick oven until they assume a rich color. They are a good accompaniment to veal or calf's head.

To Mash Turnips.—Boil them very tender. Strain till no water is left. Place in a saucepan over a gentle fire, and stir well a few minutes. Do not let them burn. Add a liltle cream, or milk, or both, salt butter and pepper. Add a tablespoonful of fine sugar. Stir and simmer five minutes longer.

To Boil or Stew Vegetable Marrow.—This excellent vegetable may be boiled as asparagus. When boiled, divide it lengthways into two, and serve it upon a toast accompanied by melted butter; or when nearly boiled, divide it as above, and stew gently in gravy like cucumbers. Care should be taken to choose young ones not exceeding six inches in length.

BANKING.

THE oldest, largest and wealthiest banking institution in existence at the present time is the Bank of England. This wonderful establishment, which makes itself felt in every money market in the world, and at home occupies such a conspicuous position in commercial and financial affairs, was chartered in 1694, with a capital of £1,200,000. At various times since, additions have been made until the capital is now £14,553,000, or about $72,000,000. The Bank of England covers a quadrangular space of about four acres, with a street on every side. The buildings are of one story, and have no windows towards any of the thoroughfares. There is little in the external appearance to attract attention. Within, there are nine courts, which afford ample sunlight and ventilation, away from the noise and dust of the street. During its long existence, this great institution has passed through some dangerous crises, such as the rebellion of 1745, when its payments were made in sixpences to gain time; the trouble occasioned by the wars with France, at the end of the last century, when specie payments were suspended, and not resumed until 1823; and during the time of the commercial difficulties in 1825, when its treasure was reduced to a very low ebb, but, luckily, the tide turned before it was exhausted.

BANK OF ENGLAND.

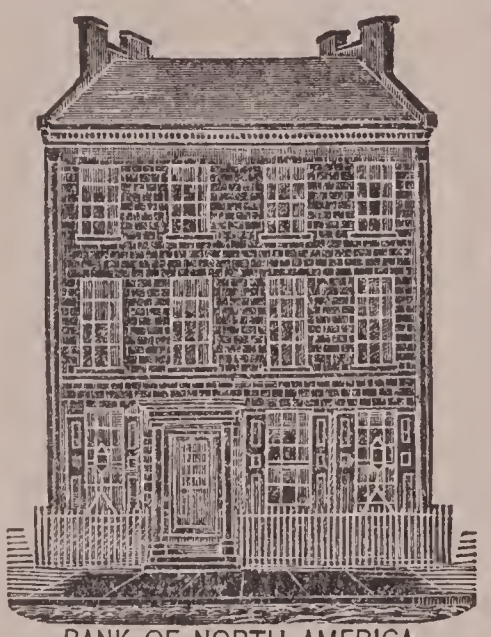
The management of the Bank is intrusted to a governor, deputy governor and twenty-four directors, eight of whom go out of office every year, but are usually re-elected. The owners of stock to the value of £500 are entitled to vote for directors. The governor must own stock to the amount of at least £4,000, the deputy governor £3,000, and a director £2,000. The directors and governors meet in the "Bank parlor," where the dividends are declared, and the rate of discount announced, a point of great importance to the money market. The dividend on £100 is 8 per cent, and the market price of that amount is about £250.

The number of persons employed in the Bank is about 900. The salary of a clerk entering at seventeen is £70, and that of the head of a department £1,200. The sum paid in salaries annually is £210,000, and some of the clerks have amassed large fortunes. There is an extensive library in the Bank for the use of the clerks, and within its walls a fine, well-kept garden.

The profits of the Bank arise from various sources. It issues notes and carries on the business of an ordi-

nary bank, receiving deposits, discounting bills, making loans, etc. A large cash balance belonging to the government is always in its hands, and of this a profit is made. The Bank, for its services in managing the national debt—which funded and unfunded, amounts to nearly eight hundred million pounds—keeping the books, attending to transfers, receiving the taxes, etc., is paid £212,000 a year.

A very large amount of bullion is kept in its vaults, as a reserve to meet any run that may be made upon the bank. The Bullion Office is a special department with its own staff of clerks. The gold is in bars, each weighing 16 lbs, while the silver is in pigs and bars, or in bags of coin. The paper currency of the realm is issued from this Bank, and there is usually from eighteen to nineteen millions sterling in circulation. The paper upon which these notes are printed is of peculiar texture and make, and together with the printing, is more difficult to counterfeit than our United States currency. When a note that has been issued, is returned to the Bank, it is immediately canceled, and consequently new notes are constantly issuing to replace those that come in.



BANK OF NORTH AMERICA
(Prior to 1846.)

The oldest bank in our own country is the Bank of North America, at Philadelphia, which was founded by the venerable Robert Morris, under the advice of Alexander Hamliton, and began business January 7, 1782, with a capital of $400,000. In 1784 its capital was increased to $2,000,000. During all its long career of over one hundred years, it has, in many trying times, been of valuable service to our government, the commonwealth of Pennsylvania, and the city of Philadelphia.

From the founding of this notable institution to the present time, it has been presided over by seven presidents, and seven cashiers, most of whom served for long terms. The career of the bank has been a checkered one, and although marked with success, it has at times been driven, in common with other banks, to suspend specie payment.

In the summer of 1798 the prevalence of yellow fever was such, and its ravages so disastrous in the neighborhood of the bank, that it was thought unsafe for the clerks to attend to their daily duties. The Bank was accordingly removed temporarily to Germantown and occupied a portion of a school house, where it remained and carried on business for about two months, when the bank again resumed its quarters in town.

The Bank of North America commenced business in a store building on Chestnut street near Third, belonging to its cashier, and continued to occupy and conduct its business for upward of sixty-five years, or until its present building was erected in 1847. The old building was never well adapted to the use of the bank, and, besides, from the fragile construction of the walls, was not considered safe. On one occasion the bank, by the merest accident, escaped the perpetration of a robbery. When Porter, the mail robber, was arrested, tried, and sentenced to death for robbing the Reading mail, in December, 1829, he sent for James S. Smith, Esq., counsel for the bank, and confessed to him that a plan had been laid for robbing the bank, which would undoubtedly have been put into execution but for his arrest. The method in which this was to have been accomplished was substantially as follows:

A narrow alley ran northward from Chestnut street, on the west side of the bank, which was at that time patrolled at night by a watchman employed by the bank. Porter and his confederates had, on some pretense, obtained access to the banking house during business hours, and had discovered that the vault wherein the specie was kept was situated on the western side of the building backing on this alley. They found, too, that owing to the miserable construction of the whole building, but one thickness of brick intervened between the alley and the vault. Having ascertained the distance of the vault from the front of the building, they had stepped a like distance in the alley, and had actually marked the part of the west wall constituting the back of the vault. Their plan was to seize and gag the bank watchman at night, cut through the brick wall, and so possess themselves of the contents of the vault. On hearing this story, the directors, of course, at once took steps to have the western walls so strengthened as to preclude the possibility of another such attempt. The attention of the directors was also forcibly directed to the ruinous state of the building by the sudden falling of two bricks from the wall in the president's room during business hours, in the early part of 1847.

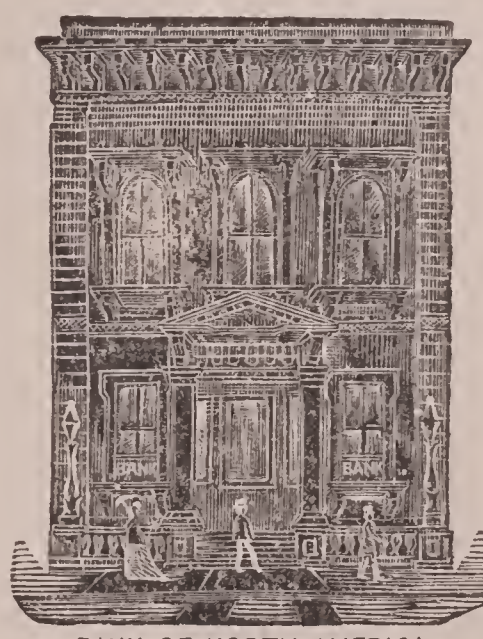
During the great panic of 1857 the Bank of North America was, like others, compelled to suspend the payment of specie, but a noteworthy fact connected

with the success of this banking institution is, that during an existence of over one hundred years, it never missed declaring its semi-annual dividend except five times, and that during a panic unexampled for its magnitude and disastrous effects upon the business community.

The Bank of North America, always loyal to the United States government, for whose aid it was originally organized, rendered valuable service to the country in a financial way during the rebellion, and although it took its place under the national system, the government at Washington allowed it, through respect for its age, to retain its old name, without adding the word "National."

ORGANIZATION OF A BANK.

The organization of a bank under a general law, either national or state, is a very simple matter. Articles of association are drawn up in accordance with the statute of the state or act of congress. In either the form is nearly always prescribed. These articles recite, 1st, the title of the proposed bank; 2d, the amount of its capital stock, the number of shares into which it is divided and the amount of each. Usually these articles contain the names of the first directors and are signed by them, the act of subscription including their election. Each subscriber to the capital stock places opposite his name the number of shares he desires.



BANK OF NORTH AMERICA.
(Since 1846.)

When the capital stock is all taken up, a certificate of organization must be filed with the secretary of state, and a certified copy thereof with the clerk or recorder of the county in which the bank is located. Generally a publication of the articles of association is made necessary by state law.

The executive management of the bank is confided to a board of directors, who are elected annually, at a meeting of stockholders. These directors are usually selected from among the wealthiest stockholders, for their business experience, their standing in community and consequent influence in gaining business for the bank. They are expected to meet weekly or semi-weekly for the purpose of regulating the affairs of the bank, discussing its present and future policy, and the status of money matters in general. In most banks they also pass on the merits of paper offered for discount, although in some banks this is left almost entirely to the cashier or president.

THE PRESIDENT.

The president is elected by the directors. He should be and generally is the executive officer of the bank. In all legal relations, he is the bank, as he is plaintiff and defendant in suits at law. The president, with the cashier, signs the shares of stock issued to shareholders.

The directors depend upon the president for their knowledge of the transactions of the bank, and his vote or advice settles most of the questions of bank policy that come before the board.

They also depend upon him for an explanation of the weekly or semi-weekly "bank statement." Hence the bank president needs be, and if successful must be, a man of approved and tried character, of good education, and having a large fund of general knowledge, keen sagacity in observing character, quick in arriving at conclusions and decided in action, with a thorough knowledge of the principles and practice of book-keeping.

The weekly or semi-weekly bank statement, for instance, is as unintelligible to the ordinary business man as so many characters in an unknown language.

It is simply an accumulation of figures, but to the skilled president it shows not only the actual present condition of the bank, but all its availabilities to meet not only probable but possible contingencies. The successful bank president must watch the currents of trade, must not only forecast the future, but he must keep his bank in a condition to meet any possible ebb or flow in the financial tides, as he is the personal and moral representative of his bank. If disaster overtakes the bank, upon his head will rest the heaviest weight of the blame.

Also, to attract the proper class of customers, the president should be honorable and high minded in all his own dealings, and free from speculation of any sort or kind.

THE CASHIER.

The cashier is the president's right hand, as to him are committed all the details of the business. In many respects his duties are co-ordinate with those of the president, while the supervision of the clerks and their accounts, the correspondence with other banks and customers, the signing of drafts drawn upon other banks, in fact, the executive work of the bank in all

its details is his particular department. Like the president, he is elected by the directors, yet he is regarded in most cases as the direct representative of the stockholders.

A faithful cashier has been known to respectfully negative a vote of his board of directors as to the policy of the bank because he *knew* that they were wrong. Yet, so far from being discharged, he was afterward rewarded by a vote of approval from the same directors, after events had proven him right and they wrong. This was perhaps an extreme case, and shows the cashier's responsibility and strength of position, when backed by approved integrity and ability, and the vindication of his wisdom.

The cashier is the representative of the bank in its daily dealings with its customers. He needs all the qualifications ascribed to the successful president with an additional imperturbability that can be ruffled by no amount of fault-finding or interruption.

INTERIOR VIEW OF THE FIRST NATIONAL BANK, CHICAGO.

He must have a perfect mastery of accounts, so that his eye can comprehend a page at a glance, of any book or record kept by the bank. He cannot be expected, in a large bank, to examine and prove all the separate entries and accounts, but he can and must compare the footings of proof sheets with the general ledger.

He knows what book to look at and how to inspect it without any aid from the clerk who keeps it, in order to test the system of the bank at any point. In many banks, the cashier is the executive officer of the bank, in fact, if not in name, and upon him depends the success or failure of the whole institution.

One of the most important duties of the cashier is the opening of accounts with new customers, and this is usually, if not always attended with some formalities. The would-be customer presents himself at the cashier's desk, either armed with a letter of introduction from a customer of the bank, or accompanied by a friend who is a depositor.

"Mr. Cashier, allow me to introduce Mr. Upper, of the firm of Upper, Sole & Co., who desires to open an account with you."

After exchanging greetings, the cashier asks,

"What business are you engaged in, Mr. Upper?"

"I am engaged in the retail boot and shoe trade."

"Where is your place of business?"

"No. 234 Market street."

Meanwhile the cashier has opened a large book called a *signature book*, and has recorded the date, the address and occupation of Mr. Upper, leaving a blank place for his name.

"Just write your name in this book, Mr. Upper."

After the signature is recorded, the cashier either instructs the receiving teller to receive the deposit of the new customer, or what is perhaps a more polite way, the cashier takes a deposit ticket from his desk, fills it out for Mr. Upper, and places his own mark of approval, perhaps the initial letters of his name, at the bottom.

"Please hand this to the receiving teller, together with your deposit, and he will give you a pass-book."

The new depositor is thus inducted into the first act, free from all embarrassment.

If the customer wishes simply to open an account, and says nothing about discounts or credit, the above embraces about all the formalities, but where a line of credit is asked, much more of detail must enter into the transaction.

It may seem that a merchant is conferring a favor in thus opening an account, and to a certain extent this is true, but there are two substantial reasons for opening such an account: the first is, that a bank account is a great convenience to the merchant, and the second, and more important reason is, that it makes his cash account elastic. That is to say, the merchant, having had a good balance to his credit in the bank during his busy season of the year, will be able, when his dull season comes on and his cash is reduced or exhausted, to secure all the ready money which he may require in order to prosecute his business enterprise,—

his credit at the bank thus carrying him over any stringency.

Banks prefer small depositors to large ones. One hundred depositors, carrying each a balance of a thousand dollars, is preferable to one depositor with a balance of one hundred thousand dollars, for the depositor having a credit balance of one hundred thousand dollars, is liable to come in at almost any time and draw out his entire balance and then ask for a credit of perhaps as much more, which, on account of his large deposits, the bank would not feel at liberty to refuse. While it is not at all probable that more than a few of the one hundred smaller depositors would desire to draw out their balance at the same time. A bank having heavy depositors must, therefore, keep a large cash capital idle in the vault to meet its demands, while the bank having only small accounts, may loan its funds up to a smaller reserve. Bankers discourage accounts that fluctuate too much between large deposits one month and heavy discounts the next.

MEETING OF THE BOARD OF DIRECTORS.

A regular depositor in good standing is entitled to a "line of discounts," depending in size upon the amount of his balance, his character for promptness, and the stability of the business in which he is engaged.

When applied to for loans or discounts, it is the cashier's duty to obtain the facts concerning the case, so that he may lay these before the board of directors at their meeting, or, in case he is intrusted with the responsibility of such matters, he may act safely.

Mr. Borrower calls on the cashier to secure the discounting of certain notes, and as this is his first request of the kind, and may lead to more extensive discounts in the future, the cashier desires to satisfy himself more fully concerning the paper and its would-be discounter. He, therefore, upon learning Mr. Borrower's errand, retires with him to an inner room, consults his mercantile agency reports concerning the standing of the maker and indorsers of the paper offered for discount, and the following conversation ensues:

"What amount of capital do you employ in your business, Mr. Borrower?"

"I have a capital of twenty-five thousand dollars."

"What are your annual sales?"

"Our sales amount to about forty thousand dollars a year."

"Do you sell much on credit?"

"Yes, sir, our sales are largely on 30, 60 and 90 days' time and on notes."

Other questions follow rapidly, and Mr. Borrower tells the cashier the extent of his range of territory, terms on which he buys, places of purchase, and other items, so that the cashier gets a very good idea of Mr. Borrower's financial standing and his probable ability to meet his obligations.

"If you will call in to-morrow, Mr. Borrower, I will let you know what I can do on these notes."

The interview closed, the cashier takes the first opportunity to jot down a synopsis of the conversation which has taken place, together with any comments or impressions which may be uppermost in his mind, in a Reference Book, alphabetically arranged. Could the customers of a bank always know what is noted down in this reference book, they would not often denounce the cashier for refusing to discount paper, which they might consider as "good as wheat."

"William Farnsworth, retail grocery merchant, 260 Carroll street. Began business in 1865 with $5,000 capital. Managing, economical and conscientious. Very successful. Standing good. 1868 continues to prosper. Built fine house on Pine street, cost $8,000. Said to have cleared $12,000 in the last three years. Capital now $8,000, besides real estate. 1869–'70–'71 business still quite prosperous, and affairs in good shape. Making money fast. 1872 to '75 worth $50,000, besides real estate. 1876 living high and takes flyers in the stock market. *Caution.* 1877 credit still good, large business, but has been seen at gambling houses. Keep a sharp eye on him. 1880 operates extensively in stocks, now often at gaming table. 1881 reported to have lost $20,000 in speculations within the last three months. January, 1882, no better. Shows effects of drink. Credit on the decline. June, 1882, continues to grow worse. Going down hill. March, 1883, think it advisable to reduce his account."

Statements to a bank cashier, should bear the stamp

of truth and candor upon their face, and any attempt at concealment, deception or chicanery will react with redoubled force and severity upon the customer who attempts to practice them.

THE PAYING TELLER

is, usually, next in order of promotion to the cashier. As denoted by the name, his duty is to pay out money. No other clerk, not even an officer of the bank, in a large bank, would think of interfering with the duties of the paying teller. In fact, from the very nature of the banking business, there must be a complete division of labor, and each employe must be assigned specific duties and be held to a strict performance of those duties. No one must shirk his own, or assume another's responsibility. In many banks, bonds are required of all the clerks and employes as a measure of protection against even an inducement to defraud. These bonds it is advisable to divide between several persons, so that the loss would not fall too heavily upon any one person in case of default, and be thereby the more apt to be collected. A director ought not to be allowed to be bondsman for a clerk in the bank of which he is a director.

AN INTERVIEW WITH THE CASHIER.

The position of paying teller is the most responsible of any employe of the bank. He has the custody and disbursement of its funds, or at least of the funds necessary for transaction of its business. The vault key is the emblem of the trust reposed in him, and that key he should surrender to no one, under any circumstances, except a demand from the officers of the bank. His own reputation might be seriously compromised, if not utterly destroyed, by confiding the key of his vault for even an hour to any other. Besides, should the paying teller, without a reason of undoubted validity, such as illness or other excuse equally valid, tender his key for a single day to president, cashier or fellow clerk, it would probably, and certainly ought to be declined, as it might be done to divide the responsibility of a grave error or even a default.

Nevertheless his vault and the currency in his keeping should be made the subject of frequent, thorough and unexpected examinations, *in his presence*.

The system of the paying teller's accounts is simple in the extreme.

He keeps on hand a certain amount of money with which to pay checks.

Subtracting the amount paid out from the amount on hand in the morning, ought to agree with the balance on hand at close of bank hours, modified by the amount of debit and credit of clearing house exchanges.

Usually the bills of smaller denominations are kept in packets of fifty each, and a check for the precise amount of any of these packages is paid without any recount of the bills.

The first duty of the paying teller is to dispatch the checks on other banks received on deposit the day before to the clearing house, and this must be done before the hour for opening the bank.

The hours required for the paying teller at his wicket are not long, usually from ten a. m. to three p. m., yet during that time he is busy with operations that call for precision, quickness of calculation, coolness of mind and concentration upon the work before him. Its pauses are filled by scrutiny of signature, indorsement, and any peculiarities of each check that may have come to him.

Almost universally in city banks the paying teller is alone authorized to certify checks; hence he is subject to be frequently interrupted by, "Please certify that, sir?" "That" is a check for five thousand dollars drawn by Brown & Jones.

They may not have that sum then on deposit, but such checks are sometimes certified, under certain circumstances relating to the capital, character and other matters which may make it safe to pay checks in advance of deposit.

These must be thought over and decided upon in an instant. Should he refuse, he may utterly wreck the credit of the firm. Should he even hesitate he creates a doubt as to its strength and reliability. Enviable is the business man or firm whose checks are certified without hesitation, the teller knowing that the firm will deposit before closing hour, enough money to keep its account good.

The officers of the bank do not like to be referred to in this matter. They want a teller who "understands

his business," and does not bother them with every doubt.

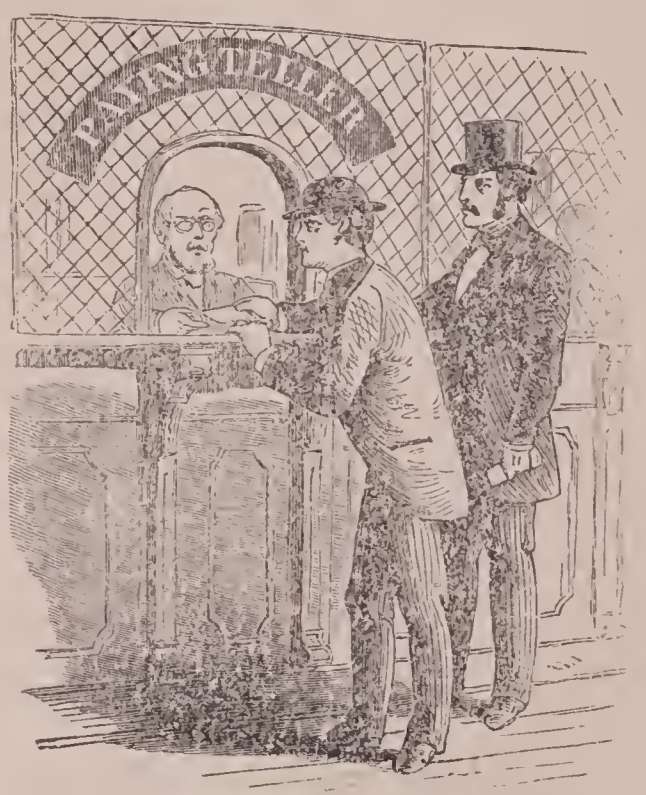
CERTIFIED

MAY 13, 18 .

.....*Teller*,

FIRST NATIONAL BANK.

With the tellers' stamp and signature across a check as a certification, it will be received at other banks as good, without reference to the signature; while the bank which certifies the check considers the act of certification equivalent to that of payment, and charges the check up to the drawer immediately the same as if it had been paid. The paying teller, after certifying the check, may pass it through to the book-keeper, who charges it up at once, or he may himself keep a list of such checks, as below, which he hands to the book-keeper at the close of the day. If the check be not charged up to the drawer when certified, it may, by some chance, not return to the bank for several days, and meanwhile the depositor may withdraw his balance, and the bank be compelled to lose the amount of the certified check when it is presented for payment.



THE PAYING TELLER.

CERTIFIED CHECK LIST.

		A to F.	G to L.	M to R.	S to Z.
	$ c.				
Brown & Jones...	30,000	30,000	.....	.....	.....
John George.. .	6,000	.....	6,000	.....	.....
George James.....	750	.....	.....	750	.....
G. West & Son....	500	.....	.....	.....	500
Jones & Brown..	8,000	.....	.....	8,000	.....
Doe & Roe.....	500.75	.....	500.75	.....	.....
Roe & Doe.....	1,200.25	1,200.25	.....	.....	.....
E. Penny.....	1,000	.....	1,000	.....	.....
John Green.....	900	.....	.....	900	.....
					500
A to F.....					31,200.25
G to L.....					7,000.75
M to R.....					9,650
					48,351.00

Three questions are instinctively asked and answered by the paying teller in regard to every check presented at his wicket:

1. Is the signature genuine? 2. Is the drawer's account good? 3. Is this man who presents this check the man who should receive the money on it?

These suggest three classes of gentry whom it is the teller's duty to guard against, detect and thwart.

First, the forger. Every bank keeps a signature book in which every depositor and each member of a depositing firm must write his and their names. To familiarize himself with all the peculiarities of a thousand to fifteen hundred signatures so as to identify them at sight is no easy task. Yet this the paying teller must do or become the victim of the forger, who is a standing terror to the bank.

Business men are criminally careless of their check books. They leave them open and within sight and reach of strangers. To remove and conceal the peculiar check and enable him to observe the color of ink, style of writing, the order of numbers and the last one used, is not a job too hard for the clever forger to essay and accomplish. If a forged check is cashed, the bank and not the man whose name is forged is the loser; hence the carelessness of many business men, who use a peculiarly marked form of check.

The skillful paying teller must judge at once whether the signature is genuine, and in doing it he is guided not only by the signature in the autograph book, but the man who presents it, his appearance and all the minutia of look and action. But forgery may lie not only in the signature but in other parts of the check, as in changing or "raising" the amount. Thus a check for eight dollars may be increased to eighteen or to eighty by adding only a few letters, or to a larger amount by adding the word "hundred." All this the paying teller must be on the alert to detect. In a recent case in New York, the changing of a figure in the date, as an 8 to a 5, which is in reality a forgery, caused the bank whose teller paid the check to lose $700. The case was this: A small manufacturer in New York City, having to go out of town for a few days, drew a check for $700 and dated it ahead to the next Saturday, saying to his book-keeper, "Now in

case I do not return before the end of the week, you can go to the bank, cash this check on Saturday, and pay the help." Soon after the proprietor had left the city, the book-keeper took the check, altered the date to three days earlier, presented it at the bank, where it was paid, and then decamped with the funds. The proprietor unexpectedly returned on Friday, and saw the situation of affairs. In the suit at law which followed, the bank was compelled to stand the loss for paying forged paper.

The only wonder is, that in the payment of millions of dollars every day in our cities, the forger succeeds as rarely as he does.

Satisfied as to its genuineness, the next query to the teller is, "Is the account good?" Has the drawer this amount in bank, or if not, will he have it there before closing hour?

There may be over a thousand accounts kept by the bank. How is the paying teller to know the state of all these accounts, so as to pay a single check without reference to the book-keeper?

Every accomplished paying teller has his own way of classifying the regular customers of the bank and so assisting his memory. One class never give notes. They sell on credit, but buy for cash. The teller knows that their accounts are always good. No need to refer when one of their checks comes to his window. Then comes a class of small customers whose accounts are very regular, not large, but none the less useful, as each has a pride in *keeping* a few hundred dollars in bank "for emergencies." Their checks can be paid at once with safety.

The third class are what may be called medium customers, and are the largest in number. They are dependent upon the bank for loans to a considerable extent, but are known as honest and trustworthy. Fearful of forfeiting the confidence of the bank, it may be, and proud of having it, they are very careful not to break its rules. The paying teller pays their checks, as a rule, without consulting their accounts, as he depends upon their past record as well as upon their honor and self-interest.

The fourth class includes those who bear watching. Conduct themselves as well as they may, be as adroit and regular as they can, the acute cashier and paying teller, judging from little tricks verging toward the dishonest, soon learn to be on their guard, and though but seldom caught napping, and so inflicting a loss upon the bank, yet it is only by the keenest observation of deportment, class of associates, street talk picked up by the collectors in their rounds, that the bank is preserved from serious loss. Frequently the man of this class so demeans himself as to win the complete confidence of the officers, but the paying teller, from his wicket, has caught a look or sign that bids him "beware!"

Here comes a check that is dated three days ahead and the teller refuses to honor it.

"Mr. Brown, this check is dated ahead."

"Well, what of it. You know that signature, don't you?"

"Yes, but we can't pay it before it is due."

"Oh, bother your rules. Hand it back then."

Mr. Brown gets his check and goes off in a pet. It may seem a small matter, that three days in date, but it was not. The balance against which it was drawn might be checked out before it became due, and the bank would then be the loser, as it could not be charged up until due.

Bank checks are usually made payable to order. The drawer wishes the indorsement of the person to whom he gives it as an evidence of payment.

The person receiving it wishes it indorsed as a security in case it should be lost or stolen. All the risk is thus thrown upon the bank. Hence the bank rule, that the person to whom a check is paid should be personally known to the paying teller, or else vouched for by some one the teller does know. This "identification" causes great annoyance to the teller, and also to the holder of the check. Hence the teller naturally prefers checks drawn payable to bearer, because he is then concerned only as to its genuineness and the state of the drawer's account.

Mr. Hasty presents himself in the line with a "Please give me the money on that."

"That" is a check drawn to Jas. Hasty, or order.

"Is your name James Hasty?" says the teller.

"Yes, James G. Hasty."

"I see that you have so indorsed it, but the check is drawn to James Hasty, and you are a stranger to me."

Mr. Hasty looks about, sees no one that can vouch for him, and says almost despairingly, "What can I do? I am in a hurry, and need this money at once."

If Mr. Hasty was well known to the teller he might pay the check, passing over the careless omission of the middle letter, but he cannot jump both irregularities.

"Well, Mr. Hasty, step to that desk and write Jas. Hasty above your present indorsement and see if some acquaintance will not come in meantime."

Mr. Hasty steps out of the line he has blocked during his colloquy, writes Jas. Hasty as directed, spies an acquaintance, Mr. Jones, and states his dilemma.

"All right. Step in behind me."

After a half hour or less, they get to the wicket, and Mr. Jones says, "Mr. Teller, this is Mr. James G. Hasty."

And so, after a half or three quarters of an hour's detention, Mr. Hasty gets his money and retires either anathematizing the strictness of bank rules, or reflecting, "Well, haste makes waste. If I had done as I ought at first, made Mr. Blunder draw my check aright and then found some one to identify me, I should have saved time." And so he would, time to himself, the teller and twenty or more other men who had to wait behind him.

On "panic days" the paying teller would seem to be unable to protect his bank. Men are rendered desperate and resort to means of relief they would have scorned to entertain a moment, in easy times. Every officer of the bank is in a "state of siege" for accommodations. But the paying teller must be completely cool and impassive, serenely unconscious of all the flurry and excitement. Closing hour at length arrives and the teller begins to look after his "favored accounts." A late depositor or so, come in to make their accounts good, and the teller is at liberty to count his cash and make up his proof sheet for the day.

TRANSACTING BUSINESS AT THE RECEIVING TELLER'S DESK.

THE RECEIVING TELLER.

The receiving teller, sometimes called the deposit teller, receives funds deposited by firms or individuals, known as individual accounts.

The note teller attends to the business with other banks and the money received by the bank for notes deposited for collection.

Both are receiving tellers, and are sometimes termed second and third tellers, as showing their places in the line of promotion.

Open before the receiving teller usually lies his receiving teller's cash book. In this he enters the name of the depositor and the amount of his deposit, as shown by the footing of the customer's deposit ticket, and then makes the entry in the customer's bank book.

FORM OF DEPOSIT TICKET.

DEPOSITED WITH

THE FIRST NATIONAL BANK,

BY BLACK & BROWN.

Indianapolis, June 4, 18 .

Currency.....			$1,250	75
Checks.....	$300			
	250			
	125	75	675	75
			$1,926	50

The teller should not receive money without this deposit ticket, as to do so would be to open the door to disputes with the customer. If the depositor should be without his pass book, as if he has left it with the book-keeper to be written up, he should then make out two deposit tickets, one of which the receiving teller will keep and the other he will certify and return to the depositor as a receipt for the money deposited.

FORM OF DEPOSITOR'S PASS BOOK.

Dr. *Cr.*

THE FIRST NATIONAL BANK, in acc't with BLACK & BROWN.

18 .				18 .			
June 1,	To cash,.....	$ 300	00	June 6,	By cash,.	$ 163	25
" 3,	" "	1,926	50	" 9,	" " .	200	00
" 8,	" "	650	00	" 17,	" " .	325	25
" 15,	" "	2,500	00	" 20,	" " .	1,275	50
" 25,	Bills Discounted.	3,125	75	" 30,	Balance,.	6,538	25
		$8,502	25			$8,502	25
July 1,	To Balance,.....	$6,538	25				

Should his cash not prove at the close of the day, the teller re-examines his entries on his cash book and checks off each item by the deposit tickets, at the same time revising each addition.

The checks of each bank are placed each in its own box in the exchange drawer, which contains as many boxes as there are banks in the city. He then makes up his "proof." This proof closes the work of the day for the second teller, and he deposits his lists, coin and currency in the vault.

It will be seen that addition and subtraction form all the mathematical calculations of this teller, and his duty may seem very easy. But this is only the mechanical part of his work.

Most of the deposits made with him have been checks of business men drawn upon other banks. The bank rule is that these should be certified by the bank upon which they are drawn, but with customers of known repute, the rule is not enforced. Hence the receiving teller is largely left to his own option.

Mr. Jenkins may deposit a dozen checks drawn by different individuals or firms on as many different banks. The receiving teller cannot know in all cases that the drawers of these checks are responsible persons, and that the money is on deposit to meet them in the banks on which they are drawn, but he knows Mr. Jenkins to be a man of honor, who would not intentionally deposit a worthless check. He therefore takes his deposit with the checks properly indorsed. Should one or more of the checks afterward prove not good, he immediately sends the check to the store of Mr. Jenkins by the bank messenger, and Mr. Jenkins draws his check for the amount. Not so with Mr. Cunning; he has been waiting to take advantage of the bank in some such way as this for some time. He deposits several checks which the receiving teller takes on his honor. Within an hour Mr. Cunning presents his own check for certification at the paying teller's window, drawn for the whole amount of his deposit within a few dollars. If the paying teller hesitates he may ask the book-keeper, who assures him that his deposit will cover the certification. The paying teller certifies the check, but the next day Mr. Speculator's check, which was deposited by Cunning, is returned from the bank on which it is drawn. The bank messenger is then immediately dispatched with the worthless check to the office of Mr. Cunning, with instructions to get the money. The messenger returns with the information that Cunning has failed and can't pay.

"Did you tell him that it was a debt of honor?

"I did."

"What did he say to that?"

"He said he knew it, but couldn't help it, as he had no money to pay with. Was very sorry it was so."

"Did you ask him about Speculator?

"Yes, but he has failed, too."

"What, both on the same day?"

"So it seems."

"Hang the pirates! I'll go and see them after banking hours, and see if I can squeeze anything out of 'em."

The teller communicates the fact to the cashier, and at the close of banking hours visits Mr. Cunning with no results. After repeated visits and negotiations the bank is glad to accept Cunning's notes at three, six and nine months in settlement.

If a large check should be received as to which the teller is in doubt, he may refer the depositor to the cashier for his decision.

The bank rule is the safeguard of the customer more than of the bank, and no offense should be taken when it is enforced. The teller may know more than the customer, and yet not be able to disclose his information. It is the duty of this teller to consult the book-keepers as to the accounts, how they average, etc., to examine the ledgers, compare notes as to the standing of not only customers, but other merchants, and to closely inspect the character of deposits and checks.

He needs to be very civil, but quick witted, with a newspaper reporter's instinct to gather news and keep it ready for use on the instant. As much as the paying teller, must he watch signatures, indorsements, dates and all the minutia about a check.

The writer once saw a check which had passed the hands of a teller and a cashier, while lacking a signature. They were both so interested in the indorsements as to omit scrutiny of signature, as the check bore a firm name at its head. This teller has to be on the alert for the work of the forger and counterfeiter. Watch his counting, and you think he has no thought or eye for anything save amount, yet eye and mind are on the alert for a counterfeit note or a forged check. Without a seeming stop a bill is tossed aside, and as one hand sweeps the pile aside, the other thrusts a bill to the customer with,

"Counterfeit. Twenty dollars off."

The detection of counterfeits is more an instinct than result of rules.

The receiving teller needs and uses the same faculty or instinct in studying character as he does in detecting a counterfeit, and frequently does detect in a customer, evidences of weakness or dishonesty, and the customer finds himself answering a short, sharp fire of queries, backed by a sharp glance, that gains full as much information as do the questions. Unusual checks that bear the marks of "accommodation paper" or

sharp practice, have been presented and show to the teller that the customer is nearing or actually in financial breakers.

At the first opportunity the cashier is informed, and a repetition is pretty sure to be followed by a request to the customer to close his accounts, or, at the least, another name will be wanted to his "paper," and the paying teller limits his certifications when next presented.

Here comes Mr. Tardy, with deposits to meet checks certified the day before by the paying teller. This is the third or fourth time the same thing has occurred recently. The receiving teller quietly observes, "Glad to see you. Our paying teller certified your checks yesterday. By the way, the cashier would like to see you before you leave."

Mr. Tardy repairs to the cashier's desk.

"Good morning Mr. Tardy. Our paying teller says you have not been on time recently, and he has over certified your account several times."

"But I have made them good the next day, Mr. Cashier."

"Yes, but your tardiness is getting worse and worse. We like to oblige a customer, but we can't do so in this way too often. You know the old adage of the pitcher that went too often to the well, and the law is very strict with us. Now this must not occur again, or we shall either have to refuse to certify your checks, or ask you to close your account."

The cashier may have seemed harsh, despite his friendly tone of voice and manner. Yet it was the very *least* he could do, in justice to the bank, and that means justice to every other customer the bank has.

Mr. Tardy could not complain.

KITING.

A practice not uncommon among dealers when hard pressed, and one which is regarded by bank officials as disreputable, is called "kiting." This consists in issuing checks in advance of a deposit, trusting to make a sufficient deposit the next morning before the check gets around through the clearing house to the bank on which it is drawn. Checks issued in this way are called "kiting checks," and the practice means to teller and cashier, beware!

Mr. Kite comes into the bank in a hurried and very excited manner, and says to the cashier, "What kind of clerks do you have in your bank?"

"We intend that they should be gentlemen."

Mr. Kite produces his bank book, and with hand trembling with passion points to a deposit of eight hundred dollars, made that day, "Do you see *that*, sir?"

The cashier sees it.

"Well, sir, your teller has thrown out my check for eight hundred dollars, when you see yourself the money was here to my credit, and has sent the check back, and my name is dishonored. That's a pretty tale that a man's credit is to be ruined by a miserable teller who doesn't understand his business, I should say."

The cashier is cool. "Mr. Kite, our tellers are very careful. I think probably you have made some mistake."

"Mr. Book-keeper, let us see Mr. Kite's account."

The book-keeper turns to Mr. Kite's account, and finds that when the check was drawn on the day before, there was a balance to his credit of $14.80. It is apparent that Mr. Kite has had the use of eight hundred dollars one day in advance of his deposit. Had the person or the bank receiving the check from Mr. Kite, presented it for certification, his "name would have been dishonored" sooner than it was.

The practice of kiting is often resorted to by parties who know better, as an expedient to raise funds, and if certification is not required, they might propagate from day to day overdrafts to any amount, without a dollar of capital.

COLLECTION CLERK.

As the name implies, the collection clerk receives payment for all promissory notes and drafts collected by the bank. In small banks this is made a portion of the receiving teller's duties, but as the business of the bank increases, it becomes necessary to subdivide the labor. The first duty of the collection clerk upon reaching the bank in the morning is to make his entries of mail remittances, received by the early mail. These come to him from the cashier's desk, and the teller places his initial as a receipt upon the letter of the sending bank. The same is true with all letters containing cash documents. He then takes up the collection notes due upon that day, checks them off upon the tickler, to make sure he is correct, and then enters them upon his cash book, alphabetically arranged by the names of the indorsers. These collection notes and drafts have been deposited by their owners, either for payment to their credit, or by one not a depositor for collection, and have all been carefully "timed" and entered up by the proper clerk in the collection register, as shown on the following page.

COLLECTION REGISTER.

When Received.	Owner.	Indorser.	Payer.	Date and Time.	When Due.	Amount.	Where Payable.	Where Sent.	Remarks.
May 6....	A. Bain.	H. Inness.	Mann & Bro.	April 1, 3 mos..	July 4.	$1,567.89	Joliet, Ill.....	1st National, Joliet.	
" 10....	B. Crane	I. Jayne..	M. Nye.....	April 6, 7 mos..	Oct. 9..	934.16	Peoria, Ill.....	Manufrs. National.	
" 12....	C. Dean.	.....	N. Olds.....	Jan. 3, 9 mos...	Oct. 6..	324.48	Elgin, Ill.....	Home Bank.	
" 15....	D. Evans	J. King...	O. Peters...	Feb. 19, 8 mos..	Oct. 22.	567.95	Quiney, Ill.....	2d National Bank.	
" 18....	E. Frey.	.....	P. Queen...	Mareh 22, 7 mos.	Oct. 25.	3,100.00	Cairo, Ill.....	Ill. National Bank.	
" ".....	F. Gauze	K. Lamb..	Q. Rayne. .	April 21, 6 mos.	Oct. 24.	2,750.50	St. Louis, Mo..	Mississippi National.	
" ".....	G. Home	.....	R. Stone....	May 2, 4 mos....	Sept. 6.	300.85	Erie, Pa.....	Home Savings Bank.	

The notes for collection which belong to other banks not located in the same town (called "foreign banks" in banker's parlance), are entered in the book of general accounts.

When he has entered all the notes and drafts, he arranges them alphabetically, by the names of the drawers, and is ready for their payment.

The discounted notes and drafts are similarly treated and placed in another pile.

PAGE FROM COLLECTION NOTE BOOK.

Indorser or Owner.	Payer.			A to H		I to P		Q to Z	
		$	c	$	c	$	c	$	c
John Green.....	Green Jones...	150	...	150	....	.....	....	.....	....
J. B. Claiborne....	J. Johnson.....	342	60	.....	....	.....	....	.....	....
	W. B. Bradford	1200	....	.....	....	.....	....	.....	....
	P. G. Jaffy	1010	15	2552	75	.....	....	.....	....
Box & Cox.....	A. B. Crane....	200	....	200	....	.....	....	.....	....
Justice & James ..	Black & Blue..	350	....	.....	....	350	....	.....	....
John Johnson.....	Brown & Coxe	2000	....	.....	....	.....	....	.....	....
	And. Jackson..	2700	....	... ..	....	.....	....	.....	....
	P. Green.....	670	20	.....	....	5370	20	.....	....
Oldon & Cone	Jasper Brown.	310	35	.....	....	310	35	.....	....
George Strong.....	Swift & Slow ..	511	66	.....	....	.....	....	511	66
		9444	96	2902	75	6030	55	511	66
	A to H.....							2902	75
	I to P..							6030	55
	Proof.....							9444	96

In some banks the collection clerk is required to get his collection note book written up, and notes arranged for the next day, before leaving at night. He is then sure to have his work in hand, should he be a little late in the morning.

The drawers or payers of the notes having been notified by notice through the mail, the teller is ready to affix the imprint of his stamp upon the notes when paid.

FORM OF NOTICE.

FIRST NATIONAL BANK.

Cleveland, March 30, 18 .

James Payemup:

You are requested to call at this Bank before 1 o'clock P. M. on April 5th, and pay a note for $1000, and interest $4.60.

C. H. DONALDSON, Cashier.

Checks offered in payment of Notes or Drafts, MUST BE CERTIFIED.

Among his annoyances are wrong deliveries of notices, which sometimes brings a very angry face to his window demanding an explanation. Another face, a perplexed one this time, wants to know if "My note is payable here to-day."

"Your name, please?" answers the teller.

"John N. Lamson, and I have been on the go among other banks for two hours and can't find it. It is for twelve hundred dollars, and must be here."

"We have no note here against John N. Lamson.

"Are you sure? Please look carefully, as I am tired out."

"Did you get a notice to pay here?"

"No, sir; I never do, and so have to hunt them up, as they seem to like to leave them all over town."

Another reference to the tickler discloses a record of a note against J. W. Lawson, due three days later, with signature so bungling as to be hard to decipher and without business place or residence. Shown to Mr. Lamson, he says,

"That's it; why didn't you say so at first?"

Mr. Lamson had forgotten his three days' grace and also to mark his place of business, and the teller advises him when he makes his next notes to make them payable at some one bank, write his name legibly, and also his place of business.

Had the clerk been pressed for time, and not been patient and obliging, Mr. Lamson's note would have gone to protest and his credit injured, if not destroyed.

PAID.

March 14, 18 .

FIRST NATIONAL BANK.

As most merchants make their notes payable at the banks where they keep their accounts, the clerk holds these until the afternoon and then sends off the messengers for certification. When they are returned he stamps the certified ones. Remittances from country banks for notes sent for collection come to his desk and have to be counted and distributed. The money

drawer of the note teller is constructed on the same pattern as that of the receiving teller, and he distributes his bills and checks in the same manner.

A customer calls to leave for collection a draft drawn on James Duncan, Omaha, at sight, for $500. The collection clerk enters the date, place, time and amount in the last part of the customer's pass book, under the head of "collections," as a receipt for the paper, and places it on file to be sent out by the evening mail to Omaha. Another customer calls, and holding up his pass book before the collection clerk's window, with his finger placed on an item,

"Has that collection been heard from?"

The clerk turns to his book and finds that the item referred to has been paid. He takes the pass book, draws a line across the entry under the head of collections, and enters it under the head of deposits in another portion of the bank book.

Mr. Krabb calls at the collection clerk's window in regard to a note for twelve hundred dollars, and is answered by the clerk that he has "received no advice from it yet." He goes off in a pet to the cashier.

"Mr. Cashier, why can't I have my collection paper credited when it is past due?" exhibiting his pass book.

"You can, sir, if it has been paid."

"Well, I don't get it. Here's a note of twelve hundred dollars due at Mobile a week ago, and another of fifteen hundred at Charleston, which was paid day before yesterday, and all the satisfaction I can get from your collection clerk is, that he supposes they are not heard from. I wish I could be saved this annoyance of having to run to the bank every day to keep your books straight."

"The clerk is right, Mr. Krabb. We have no advice of the notes, but I think we should get it by to-day's southern mail. Walk in, sir. Here is the porter with the mail now."

The cashier finds a notice of protest in both cases, which he hands over to Mr. Krabb, who vents some additional bitterness on banks generally, as if they were responsible for his misfortunes. Meanwhile the callers at the collection clerk's window are served one after another, and so the hours go on, increasing in the rapidity of receiving, counting and stamping until the bank closes, when he checks off the notes paid from his cash book and tickler, and hands the ones remaining unpaid over to a notary public to be protested.

THE DISCOUNT CLERK.

The directors of a bank usually meet twice a week on stated days, in order to take action upon the notes offered for discount.

In a large city bank the number of persons applying for discount is from one hundred to three hundred per week.

The theory of the banking system is that the board of directors canvass each note offered, the party offering, his business, its outlook, changes since last meeting in the course of the market, and everything connected or related to the note and its maker and indorsers. Practically, the conduct of the bank is largely left to the president and cashier. Notes are generally discounted for 60 days. Occasionally a bank takes 90 or even 120 day paper, but the rule is 60 days.

Short term paper has two advantages to the bank. First, safety, in that the maker and his backers have less time for losses in their business, and the general tendency of business can be more readily foreseen for the shorter period, while the bank can keep its resources more closely in hand. Second, profit, inasmuch as discount is interest taken in advance, the bank is the gainer by oftener turning its money.

The day previous to discount day, or board meeting, is offering day, because customers needing discounts send in their notes on that day. The discount clerk receives these notes and records them in the offering book, with the customers' names arranged alphabetically for convenient reference. If numbered in the margin, it is so much the more convenient. When this record is kept as it ought to be, for the use of the officers and the board, it will include the average deposits, amount already discounted, names of indorsers (if any), statement of securities held as collaterals, time of discount needed by each customer. The directors can then have all the information needed from the bank records. Following is a page from such an

OFFERING BOOK.

	Offered by	Aver. Bal.	Am't now Disc'd	Indorser	Payer.	Time.	Am't.		
1	P. Green...	$1,500	None	....	U. G. Payne	50 ds.	$2,200	75	A
2	J. Brandies..	3,750	$5,700	A. P. Coe.....	D. Brown & Co.	2 mo.	7,000	..	R
3	Roe & Doe..	5,000	8,500	R. Jones	Smith & Hunter	90 ds.	3,575	50	R
4	Dox & Bro..	275	None	P. Cox	T. Slevin.....	30 ds.	500	..	A
5	J.B.Samps'n	nonc	1,500	A. Y. Johnson	Robert Stone...	3 mo.	2.100	30	R
6	D.B.Shepard	750	3,000	12 business no	tes of amount..	75 ds.	1,200	..	A
7	A. X. Sawyer	1,200	2,000	Collaterals wi	th own note....	60 ds.	1,650	..	A
8	Jno. Roberts	Over dra'n	1,500	30 sharesC.&A. own	R. R. stock and note	120 ds	4,500	..	R
9	Jas. Daniels	5,600	7,800	.....	A. B. Porter....	90 ds.	3,200	..	A
							25,926	55	
					Amount accepted.....		8,750	75	

The book of offerings and the package of notes are returned to the desk of the discount clerk after the consideration and action of the directors. Opposite each entry he finds the disposition made of it.

"A" shows those accepted and "R" those rejected. Should any be held for further consideration or inquiry, he probably finds an "H" scored opposite the entry.

Banks differ as to the next disposal of the accepted paper. Some have it transferred to a discount book, of which there is one for each customers' ledger, covering the same letters of the alphabet. The amount of the discount and the net amount of the notes are then extended in the blank columns of the offering book.

The footings in this book must be compared and proved with the aggregates of the discount books. The credits are then transferred thence to the ledgers.

Some banks keep a discount register to which the record of accepted paper is taken from the offering book, and thence posted in the personal accounts. Other banks keep discount ledgers, which embrace only the accounts of deposit customers who are also discount customers. These show each item connected with the discounted paper as shown on the offering book, and also the liability of each customer as an indorser for others. As "accommodation paper" or exchanged notes are an evidence of financial weakness and needs close watching, this plan seems to be the safest and best.

The discount clerk must run over these ledgers every day and cancel all notes when paid. This he does by ruling across the figures or marking them paid. He then files the notes. A separate package is made up for each day of maturity. The importance of the position of the discount clerk is shown by the fact that the bank confides to his charge nearly all its bills receivable. In these consist the largest share of the resources of the bank. The bank holds him directly responsible for their safety. He places them in the vaults at night only to resume them the next morning. Should president or cashier wish to examine any particular note, they do it in his presence. The meddling of any one would lessen or destroy his responsibility.

In direct intercourse with customers, the discount clerk comes next to the executive officers of the bank. He is the connecting link between officers and customers, as to the part of the business where the bank makes or loses its money most rapidly.

When nearing financial breakers, no little solicitation is often expended upon the discount clerk by those who believe him to be "a power behind the throne."

In times of depression the space near his desk is often crowded before adjournment of the board by anxious customers, waiting to learn the fate of their discount applications. If not successful here they must seek relief elsewhere. To study these faces and learn whether it is anxiety for a present need, "to bridge over," as it is termed, or complete failure that threatens, is a part of the discount teller's duty.

The offering book comes back to his desk, and the accepted depart with smiles, while the authors of "rejected addresses" accept their fate as best they can or may. Expostulation, argument, entreaty are employed in turn upon the discount clerk. Now is the time when the worth of the clerk displays itself. Kindly explanation and sympathetic words are never lost, and if the bank is doing all that can be done, the discount clerk can often make it secure friends by *his manner*, even when conveying bad news.

Before the notes are entered upon the discount register, they are carefully examined either by the discount clerk or by some other. In a small bank, the discount clerk not only receives all paper to be discounted, but he keeps the discount register and ticklers, while in a larger bank this work would necessarily need to be divided among two or more persons. Every line of the paper, date, indorsement, and, in fact, both sides are carefully examined. The note must not be changed or disfigured after leaving the hands of the maker. Satisfied that everything is correct the note is then entered upon the

DISCOUNT REGISTER.

DATE.	NO.	DRAWEE OR MAKER.	DRAWER OR INDORSER.	WHERE PAYABLE.	TIME.	WHEN DISCOUN'D	WHEN DUE.	AMOUNT.		AM'T DISC.		PROCEEDS.		WHEN PAID	
18															
May 5.....	6482	J. Green.....	N. Jones.....	Am. Bank....	60 days.	June 15.	July 4-7	$620	95	$2	28	$618	67		
March 18..	6483	G. Brown.....	N. Jones.....	Am. Bank....	90 days.	June 15.	June 16-19	2,100	50	1	40	2,099	10		
June 1.....	6484	B. Black.....	B. Payne.....	148 Elm St....	30 days.	June 15.	July 4	310	....	....	98	309	02		
May 8.....	6485	S. White.....	A. Jackson...	Union Nat.Bk	60 days.	June 16.	July 7-10	2,675	85	10	70	2,665	15		
May 11.....	6486	W. Lake.....	J. May & Co..	Com'l Bank...	60 days.	June 16.	July 10-13	3,157	65	14	21	3,143	44		
June 2.....	6487	L. Umber	M. Mix..	284 Canal St...	30 days.	June 16.	July 2-5	185	90	....	59	185	31		
March 16..	6488	G. Slade	B. Cradle.....	Am. Bank	100 days.	June 16.	June 24-27	215	06	....	39	214	67		

The note clerk cannot exercise too much care in regard to dates of maturity, as he may, by an error of a single day, cause the bank to lose the value of the paper discounted, as the notice of protesting to the indorser would be so late that he would be released, and the bank lose its remedy against him.

Should the wrong maturity be placed upon the note, by maker or owner, the bank would still be liable unless it could prove an *intention* to defraud. The bank would be held as "adopting the error," and thus making it its own.

The date of maturity is then marked upon each note, and they are numbered and copied into a "tickler" according to dates. The tickler is a diary or record of notes due upon each day of the year, as follows:

THURSDAY, AUGUST 18, 18 .

No.	Payer.	Amount.	When Notified.	When Paid.	Remarks.
3468	James Payemup, 76 Pine st.	$8,640			
3392	Samuel Dodge, Merchants' Bank.	4,000			
3864	Amos Brown & Co., 187 Monroe street.	1,250.80			
3980	C. M. Cale & Co., Union National.	250.50			

This tickler contains only the number of the note, amount, the name of the payer, his place of business or residence, a column for when notified, and another column when paid. There are usually four ticklers in use in a bank; one for paper left at the bank for collection, due at home, and another for the same class of paper due abroad; and two others which serve in the same way for paper discounted, which is due both at home and abroad.

BOOK-KEEPERS.

The number of book-keepers employed by any bank is of course regulated by its number of customers, amount and character of business. Usually in a bank of the first or second class four ledgers are kept. The first includes the names and accounts of customers, arranged alphabetically, from A to F, the second from G to L, the third from M to R, and the fourth from S to Z. Each ledger is calculated to hold four hundred names. Nowhere does the result of the science, or systematized knowledge of the principles of book-keeping, find freer exemplification than in opening a ledger of this kind.

System and method here will show through the whole set of books, and the book-keeper demonstrates his fitness for doing his work, so as to save time and trouble at the very outset.

Below will be shown the proper system for opening a ledger called the "vowel system," which is the result of experience, in apportioning the number of pages in a ledger of 1,200 pages to the names commencing with each letter of the alphabet. If four hundred accounts are to be opened, this would allow an average of three pages to each account, but while some depositors would make two or three deposits per week and have no discounts or collections, others would soon fill up their three pages by the numerous credits and checks; this would soon throw the book into confusion on account of transferring from page to page. The vowel plan is to apportion to names, commencing with each letter of the alphabet, a number of pages corresponding to the frequency with which such names will occur. Thus, names commencing with W will occur much oftener than those beginning with Z, and C much oftener than those with W. The proportion in which names will occur has been carefully estimated from examinations of directories, dictionaries, gazetteers, etc., and is about as follows:

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
68	88	136	52	56	56	36	48	20	20	20	36	68	32	20

P	Q	R	S	T	U	V	W	X	Y	Z
88	4	56	116	76	12	20	56	4	4	4

Under each of the above letters the accounts are classified again, and thus the book-keeper, in opening his accounts, will leave 136 pages for names commencing with C, in the proportion as follows:

Ca	Ce	Ci	Co	Cu	Cy
48	12	12	48	12	4

To the book-keeper, with whom little economies become great gains, a short time spent in indexing and arranging the accounts of his ledger, will return to him a hundred fold in convenience and facility during the year's posting.

The book-keeper extends in his column in the receiving teller's cash book, the deposits belonging to customers upon his ledger, as shown in the form given, and posts the amounts to their credit in the ledger. Each book-keeper does this in turn, when the footings are brought together and their sum compared with the sum of the main column. In the meantime the teller uses an alternate cash book. The collection note book is used in the same way, and the proceeds of collections posted to the ledger.

There is little variety of entry in bank book-keeping, and in this respect bank book-keeping is more simple than any other. The book-keeper has only to post the customer's deposits to his credit and the checks drawn upon the bank to the debtor side of his account.

From time to time his bank book is called and "written up," that is, all his deposits being already there, show his credits. Upon the opposite page the book-keeper inserts the amounts of each check with its date, and carries forward his balance. This establishes the correctness of the book-keeper's ledger, when they prove each other.

If the book-keeper should post an item to the wrong account, as if he should credit Jones with $1,000 deposit when it should have gone to the credit of Smith, this may be the occasion of the bank losing that amount. The error would probably be discovered by Smith overdrawing his account, when the bank would send him a notice to that effect, or his check would be thrown out by the paying teller. This would lead to an investigation of his account, and the error is then discovered. Meanwhile Jones, who is dishonest enough, has taken advantage of the bank's error and has checked out the $1,000. A judgment against Jones would be barren of results, besides adding to it the expenses of a law suit; the bank concludes, therefore, to charge the $1,000 to profit and loss account.

The checks paid by the paying teller or received by either of the receiving tellers, were canceled by them when received. This was done by pressing them down over a spindle with a blade-like top, peculiar to each, so that the shape of the cut indicates the teller who received it, as clearly as though he had written his name upon it. After posting these checks the book-keeper places each in its separate box in his drawer, until he writes up the customer's bank book.

The book-keeper must keep his books posted up to the transactions of the day and frequently add both sides, marking amounts in pencil so that, should he be away from his desk, either teller or the cashier can know from a glance the state of each account. Moreover, he can answer the question, as to the state of an account, without stopping to run up the columns, as these frequent additions keep the whole matter in his memory.

In making up his "monthly proof" the book-keeper draws off a list of the balances on his ledger, and hands it to the cashier. These added together must agree with the amount of deposits, posted in gross, to general ledger.

The book-keeper is subject to frequent interruptions from the tellers and officers of the bank. The paying teller asks:

"Is Henry Campbell's account good for four hundred dollars?"

"Yes, for four thousand."

The cashier steps to the book-keeper's desk and asks to see the account of John Smashemup.

"What sort of an account does he keep?"

"Very lean, carries no balance scarcely at all."

"How is that; he makes large deposits."

"Yes, but he puts it in at one window and draws it out at the other."

The cashier returns to the directors' room, and the paper offered by Mr. Smashemup is not discounted.

The book-keeper should write a plain hand, without any flourishes, making good full-faced figures, about which there can be no mistaking a 7 for a 9, or a 3 for a 5.

The difference between individual and general accounts has already been shown.

The general book-keeper has charge of the latter department, and deals with the *results* of the business of the bank.

He takes precedence of the other book-keepers, and has as much of the confidence of officers and managers as either of the tellers. He has, in his department, the stock and transfer books, and must see that old stock certificates are surrendered and canceled before a new one is issued.

These books are proved three times each year, twice at dividend times, and once before the annual meeting for election of directors.

In the general ledger are placed in gross the footings from the discount books and the tellers' cash books, as also the footings of the several check lists. The gross balance must show the amount of deposits on each "individual ledger," and "proves" the monthly proof-sheet of each book-keeper.

In commencing business, cash was debited to capital. This cash was then transferred to the paying teller and the proper entries made. All the daily receipts of the bank are charged to the paying teller, and the whole check list credited to him. The cash balance on the general book-keeper's ledger and the teller's proof must agree. Should a disagreement be found, one or the other, and most probably the teller, has made an error.

This book-keeper must post each day the payments of discounted notes, and also the additional discounts of the day. This proves each tickler and shows the amount of bills receivable on hand. Expense account receives salaries, rents, and all other expenditures. Interest, exchange and other matters are each properly kept, and when dividend time comes go to make up the profit and loss account.

Hence the balances of all the accounts of the general

book-keeper can be easily brought together into the bank statement.

National and state banks are required by law to make these statements at periodical times, an example of which is here given as below.

STATEMENT
OF
The First National Bank of Chicago, Illinois
At the close of business, on Tuesday, October 3, 18 .

RESOURCES.		LIABILITIES.	
Loans and discounts	$11,383,157.70	Capital stock paid in	$ 3,000,000.00
Overdrafts	13,334.70	Surplus fund	100,000.00
U. S. bonds to secure circulation	50,000.00	Other undivided profits	128,195.82
U. S. bonds to secure deposits		National bank notes outstanding	
U. S. bonds on hand	1,026,200.00	State bank notes out standing	
Other stocks, bonds and mortgages	889,250.00	Dividends unpaid	22,334.00
Due from approved reserve agents	1,519,070.72	Individual deposits	9,862,828.52
Due from other banks and bankers	1,342,916.68	United States deposits.	
Real estate, furniture and fixtures	4,250.00	Deposits of U. S. disbursing officers	
Current expenses and taxes paid		Due to other national banks	4,086,804.63
Premiums paid	28,322.64	Due to state banks and bankers	3,202,750.44
Checks and other cash items	2,176.67	Notes and bills re-discounted	
Exchanges for clearing house	1,083,324.47	Bills payable	
Bills of other banks	230,000.00		
Fractional currency	244.83		
Specie	2,037,415.00		
Legal tender notes	575,000.00		
U. S. certificates of deposit	200,000.00		
Due from U. S. Treasurer	18,250.00		
Total	$20,402,913.41	Total	$20,402,913.41

The correctness and truthfulness of the statement is then sworn to before a notary public, and it is ready to be published according to the requirements of the law under which the bank is organized. Severe penalties are prescribed for a false statement in overvaluing the resources or understating the liabilities of the bank.

An important functionary of the bank has not been noticed. He is variously known as the

COLLECTOR, MESSENGER, OR RUNNER.

This Mercury of the bank, not winged, like his prototype, but active, keen, and sometimes inclined to pertness if not sauciness, has been called the "sergeant-at-arms." His duties are to present the notices of notes due or to become due, and so warn the makers of their coming liability. Of late, and especially in western banks, this duty has been relegated to the mail carrier, such notices being mailed. In such case, the collector, or runner, is only a few days behind.

Each messenger has his district, and is expected to know where to find his man at any time. And to his quick eye and ear any hesitation betrays sometimes more than the sufferer would have shown, had he surmised how quickened was every sense of the youth who watches every word and motion, and sees "danger signals" before his officers have dreamed of them.

Many a bank officer has saved his institution from severe losses by trusting the intuitions of his collectors, as it is their duty to report any signs or talk they may see or hear of "shakiness" or weakness.

Colloquies like the following are not at all infrequent:

"Well, George, what news on street to-day?"

"Things look shaky, sir. In at Johnson & Co.'s I heard that Sharp & Co. had gone up, and the Safety National is in for fifty thousand."

"You don't say? Sharp & Co.?"

"Yes, sir; so they said at Johnson's, and I also heard it on street. Besides, I heard that Blackwilding was offering two per cent a month over at Shaver & Breakems, this morning, and that on the board of trade, it was rumored that Barley & Co. had laid down. In fact, on street, things look pretty blue."

"Well, well. I shall have to look up Howell & Smith's account. I know that they are pretty thick with Barley & Co."

And Mr. President or Cashier retires to his room or desk with food for reflection and probable action.

The collector is off again, feeling that his information was appreciated, and that some day the dignity of a regular desk will be his reward.

A PANIC.

When everything moves regularly along, the duties of the bank cashier and president are pleasant. The working machinery of the bank moves with precision and clears up each day's business without jars or discords. The balances at the clearing house are favorable and quite uniform. The daily press teems with representations of the prosperous condition of different classes of business. The abundant crops are said to have enriched the farmer and stock grower, and the manufacturer is pressed to supply the demand for his wares. Looking out into the financial skies, the bank president can discern no indication of any coming storm, and the volume of loans is allowed to run up higher. Checks are certified in advance of deposits, trusting dealers to make their accounts good, and credit extended in every direction.

Suddenly stocks begin to decline on the board. The banks begin to contract their loans immediately, realizing that they are far from shore. There is reported an embezzlement of a large sum of money by a railway official, which, blazed forth in the daily papers, tends to unsettle the public mind. Resources every-

where seem to contract, while obligations expand and loom up before debtors. The cashier is importuned for loans and discounts. Customers press their demands in a manner which they would never think of doing in an ordinary market. The cashier is in a state of siege, and is powerless to satisfy his customers. They press into the president's room, and demand, as a matter of right and justice, that their paper be discounted. The failure of a large iron firm is reported, with liabilities of five hundred thousand dollars; but this is explained as incident to the depressed condition of that market. Merchants, brokers, bankers, and all classes of business men exhibit excitement and fear. Suddenly the failure of a large banking institution is announced on the bulletins, printed and issued in *extras* by the newspapers, and sent by telegraph all over the country. This failure falls like a bomb-shell on the ears of the excited public. Embarrassments and suspensions are the chief topics of news and conversation. Rumors of dishonest jobbing and misuse of funds fill the air, destroying the confidence of man in man. Reports are started and rapidly circulated, aggravating the circumstances of failure. Candid and thoughtful business men seem to have entirely lost reason and judgment, and all join in the great excitement and distrust. Men lose confidence in all moneyed institutions, and old and substantial concerns are swept down and become a part of the common wreck, while this mad whirlwind of discredit and fear sweeps on to ruin.

A RUN ON THE BANK.

Credit is the banker's capital to a large extent, and is to him what the stock of goods is to the merchant. In prosperous times the banker dispenses this credit to his various customers, perhaps to the extent of five times his actual capital, and a handsome profit is the result. But let this confidence of the public be destroyed, and the banker is left with nothing but his actual capital to meet liabilities. The whole commercial and financial fabric rests largely on confidence. No truer illustration of the working of confidence, in sustaining or overturning existing institutions can be found than the anecdote of the little Frenchman who had one thousand dollars on deposit in the bank, and when failures and excitement began, he went to the bank to draw the money. Upon presenting his check, the paying teller examined it and said blandly,

"Are you sure you want to draw all this money?"

"Oui, monsieur; I starve for want of l'argent" (the silver).

"Can't you do without it?'

"No, monsieur; I must have him."

"You *must?*"

"Oui, monsieur," said the little chatterer, turning pale with fear for the safety of his money.

"And you can't do without it?"

"No, monsieur, not von other leetle moment longare."

The paying teller then began to count out the money.

"Oh, you have got him!"

"Certainly! What astonishes you?"

"Vy, dat you have got him in dese times, ven all ze banks break several times, all to pieces."

"Oh yes, we have plenty of money to pay all checks that are presented."

"Monsieur, you shall do me von leetle favor, eh?"

"With all my heart."

"Well, monsieur, you shall keep l'argent for me some leetle year longare."

"Why, I thought you wanted it."

"Oh no, monsieur; I no vant ze money, I vant ze grand confidence. Suppose you no got ze money, zen I vant him ver much—suppose you got him, zen I no vant him at all. I vant ze *grand confidence*."

When word goes forth that a run has been commenced on the banks, the climax of panic excitement is soon reached. Each depositor is eagerly bent on securing his balance before the treasures in the vault of the bank are exhausted. Check after check is presented

and paid, and still they come. Thousands of people are in the street, either discussing the situation or struggling for entrance to the banking room. Excitement runs high. Bank books are examined, but a moment is required to write a check, a signature is hurriedly dashed off at its bottom, and in another instant the check is on its way to the bank, to press amid the great throng struggling for entrance and payment. When the excitement reaches a certain pitch it becomes a frenzy, and the police are powerless to stay the pressure of the tide which threatens to overwhelm the bank. Such is unreasoning, unreflecting man, when confidence has been destroyed.

It is amusing to note by what thin devices the excited depositors of banks in times of panic have been entirely quieted, had their confidence restored, and have gone away satisfied. In one case the president of a bank is said to have obtained a number of sacks of meal, opened them at the top, put a good thick layer of coin upon the contents, then placed them untied where the glittering coins would be manifest to all observers. Another bank obtained a number of people as confederates, to whom they paid gold, then slipped around again to a back door, and refunded it. Others placed peck measures, inverted and covered with a pile of gold coin on top, in the windows facing the street.

BANK FRAUDS.

Bank frauds are of two kinds: those from within the institution, by its officers and trusted employes, and those from without by dealers, counterfeiters and forgers. Being a moneyed institution, it is but natural that the bank should be the prey of sharks and swindlers, who lay in wait to take advantage of the unsuspecting, and yet it is a fact that less value is lost by fraud and embezzlement in the banking business than in the mercantile. A clerk in a store may abstract articles of merchandise from the stock constantly, until his peculations amount to thousands of dollars, and perhaps no discovery will be made of the theft, or if discovered, the sensation is soon over, subsides and is forgotten; but let a fraud be committed on the bank, a forgery, or an embezzlement, and the fact is emblazoned all abroad, the bank's affairs are discussed and criticised, and if a large fraud, its effect on the money market is predicted; it is talked on the street, in the store and in the workshop. Banks are more guarded against fraud, and the business is conducted more on a basis of system and security than ordinary establishments, which makes the liability to detection greater.

Frauds from within, perpetrated by officers and employes from president to porter, vary in magnitude from hundreds of thousands down to a few dollars. Bank officers are human, and when the fever of speculation is high in the outside world and fortunes are being made in a day, the president or cashier is tempted to take a chance which seems to him to lure to immediate fortune, especially when the means of gratifying this desire is at his command.

It is the *duty* of the directors to inspect the doings of the officers, but a duty "more honored in the breach than in the observance." Rules are made, making it the business of the directors to know that the weekly statement is what it purports to be, yet, cashiers like Baldwin, of Newark, New Jersey, and others, steal everything but the bank safes.

Gaining the complete confidence of directors and stockholders, their statements are never verified. With opportunity comes temptation, and the cashier who has become master of the directors, in his haste to become as rich as they are, uses bank funds for speculation.

Except in the one case of certification, no rule should be made for guidance of bank director, president or cashier, or employe, that is not enforced to the letter.

No director or stockholder should be taken upon any such bond, for good behavior. A small bond is more surely collected than a large one, and one from an outsider more certainly than from one of your own business family. But if bonds are to take the place of inspection and verification of reports and accounts, better let the bonds go, and look closely after each account book and report.

The following case occurred in New York some years ago:

The cashier of a bank having a capital of four hundred thousand dollars, became the treasurer of a railroad company. In the course of his receipts and disbursements there was an overdraft of several thousand dollars. To conceal this from the president, who was a stern disciplinarian, notes which had been left, or sent to the bank for collection, were discounted in another bank. This necessitated falsifying the accounts. The cashier had been associated with the president for twenty years. They were relatives, and enjoyed the entire confidence of each other. This was a necessary element in a fraud which was to reach two hundred and fifty thousand dollars before its discovery.

As the embezzlement grew, it caused a corresponding decline in the discount line of the bank, and the president was deceived by a fictitious statement. Drafts on other cities of which no entries were made, were sold and the proceeds abstracted; certificates of

deposit were issued and negotiated in private and surreptitious channels; entries on the ledger were falsified where a page was likely to be examined, and after the examination, the falsifications were erased. These irregularities were kept up for a year and a half, and all this time the president and cashier were daily and hourly together in the management of the bank, besides mingling in social contact with friends and families in the evening.

The president was an experienced and shrewd banker, but the cashier had the collusion of the clerks—even the porter, who went daily to the post-office, intercepted all letters which would excite suspicion. The post-office clerk was bribed to retain any that might come at an unusual hour. In short, the president was dogged and blinded at every step and turn, and every avenue of suspicion was cut off.

The bubble finally burst, and the scheme which had been conducted with such remarkable skill for nearly a year and a half, came to light. The president and the public were amazed, bewildered and stunned.

As previously shown, the system of accounts in a bank is such, or may be such, that the correctness of each account is twice proven, and the cashier knows that every account is correct by the proofs that come to his desk, unless there should be collusion between at least three of the employes, of which examples have been known, but such conspiracies are very rare. They are impossible where the cashier circulates among the clerks twice or more times a day and glances hastily along the pages of the books, demanding explanation of every item that needs it.

The bank owes its security against fraud from without, among its multitude of dealers, largely to the power of credit. If men are not impelled to right actions by motives of morality they are often restrained by the fear of being cut off from the facilities of credit, which are so essential to success in business. Inconsiderate persons, upon opening an account with the bank, begin by telling the cashier an exaggerated story of their capital, and commercial prospects. They forget that their deposits, bills receivable, checks and indorsements will form a record that will dispel all shams, and that there is no species of humbuggery which will so surely recoil upon the persons, as those who attempt to palm off big tales on a bank officer.

Dealers have it in their power to oftentimes take advantage of the confidence reposed in them by the bank. Thus, an unscrupulous dealer may employ several methods of withdrawing his deposit at the same time, and thus defraud the bank of several times the amount. For instance, Jones may have a balance in the bank of $1,000 in the morning. He may draw his check for the amount and receive the cash for it from the paying teller; at the same time he may take up his note at the note teller's desk with his check; he may give it to another depositor for deposit in the same bank; and he may pay a sight draft which is presented at his place of business by the collector; thus he may draw out four thousand dollars in reality while he has only one thousand on deposit. The only method which a bank with numerous clerks has to protect itself from being victimized in this way, is by mutual advisements among the clerks. If a check which has been deposited, upon another bank, proves not good, the amount is charged up to the customer depositing it, and the check is returned to him; but if the check is on the same bank in which it is deposited, the bank, in the act of receiving it, assumes that it is good, and should there be no balance to meet it, the bank must look to the drawer, and not the depositor, to make it good.

OVER CERTIFICATION.

The practice of certifying checks has been in use at least a half century. At first, certification was not considered as binding the bank to pay the check. It only gave clerical information, and when certified, its amount was not charged to the drawer until it had been presented for payment.

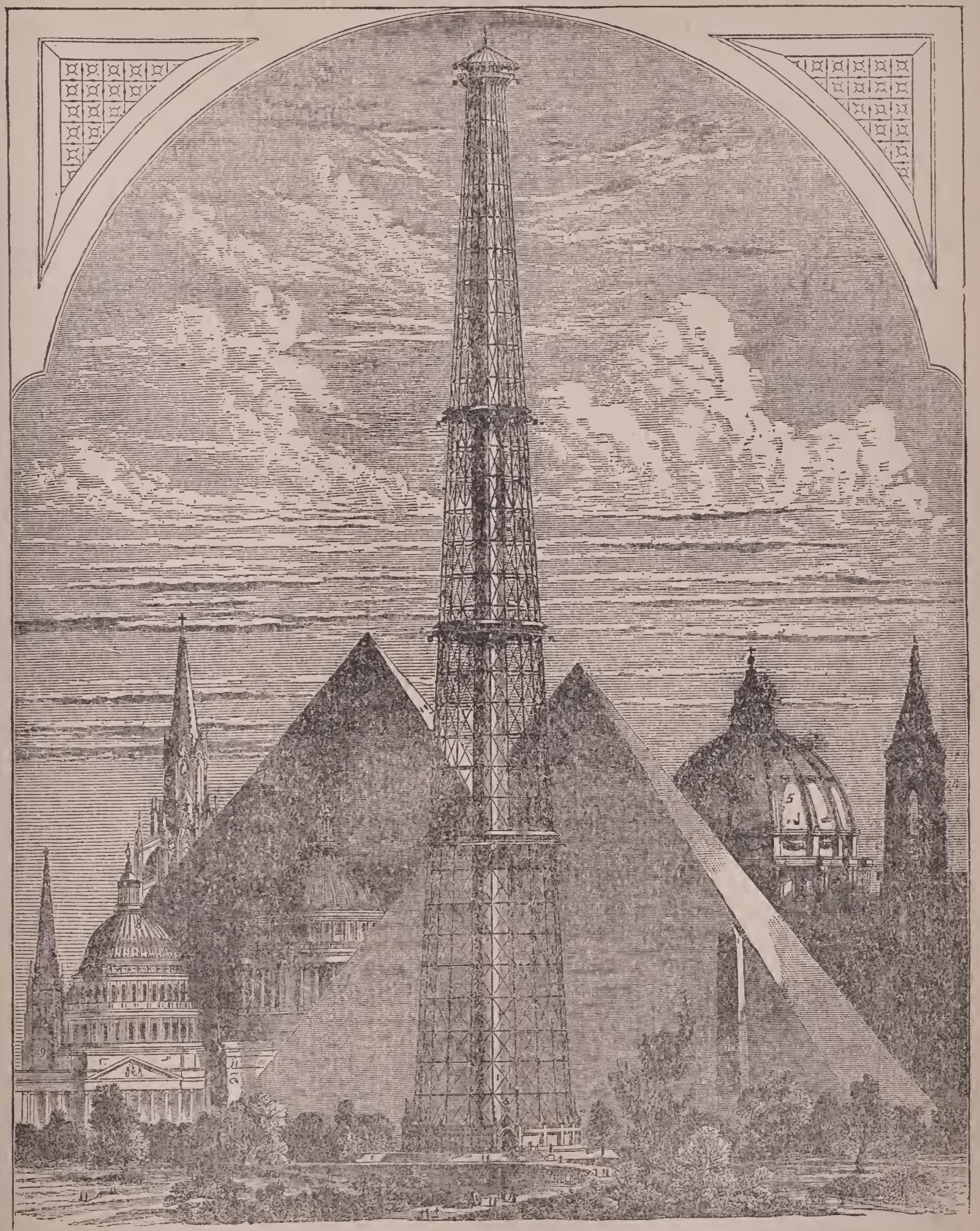
With the introduction of the clearing house came the present custom of certification, being the same as an acknowledgment of a legal obligation upon the bank, and the amount of the check was at the time of certification charged to the account of the drawer.

If confined to commercial transactions, it is only right that the question of over certification should be left to the discretion of each bank.

But with the advent of stock transactions upon a large, and in many instances questionable scale, over certification grew into an abuse, as regarded banks having that class of customers.

Hence, the act of congress prohibiting national banks from certifying checks in any case, to more than the actual deposit to the credit of the customer at the time of application for the certification.

A violation of this subjected the bank to the appointment of a receiver, subject to the judgment of the bank comptroller. But the law has never been enforced, though often violated. The New York banks claim, however, that losses from over certification are very much less than from ordinary discounts.



THE HIGHEST BUILDINGS IN THE WORLD.

1. An imaginary tower, 1000 feet high. 2. Cathedral at Cologne, 501 feet. 3. Pyramid of Cheops, 480 feet. 4. Strasbourg Cathedral, 468 feet. 5. St. Peter's, Rome, 457 feet. 6. Pyramid of Cephren, 454 feet. 7. St. Paul's, London, 365 feet. 8. Capitol at Washington, 287 feet. 9. Trinity Church, N. Y., 286 feet. 10. Bunker Hill Monument, 221 feet. 11. St. Mark's, Philadelphia, 150 feet.

HOW TO BE HANDSOME.

Where is the woman who would not be beautiful? If such there be—but no, she does not exist. From that memorable day when the Queen of Sheba made a formal call on the late lamented King Solomon until the recent advent of the Jersey Lily, the power of beauty has controlled the fate of dynasties and the lives of men. How to be beautiful, and consequently powerful, is a question of far greater importance to the feminine mind than predestination or any other abstract subject. If women are to govern, control, manage, influence and retain the adoration of husbands, fathers, brothers, lovers or even cousins, they must look their prettiest at all times.

All women cannot have good features, but they can look well, and it is possible to a great extent to correct deformity and develop much of the figure. The first step to good looks is good health, and the first element of health is cleanliness. Keep clean—wash freely, bathe regularly. All the skin wants is leave to act, and it takes care of itself. In the matter of baths we do not strongly advocate a plunge in ice-cold water; it takes a woman with clear grit and a strong constitution to endure it. If a hot bath be used, let it come before retiring, as there is less danger of taking cold afterwards; and, besides, the body is weakened by the ablution and needs immediate rest. It is well to use a flesh-brush, and afterwards rinse off the soap-suds by briskly rubbing the body with a pair of coarse toilet gloves. The most important part of a bath is the drying. Every part of the body should be rubbed to a glowing redness, using a coarse crash towel at the finish. If sufficient friction can not be given, a small amount of bay rum applied with the palm of the hand will be found efficacious. Ladies who have ample leisure and who lead methodical lives, take a plunge or sponge bath three times a week, and a vapor or sun bath every day. To facilitate this very beneficial practice, a south or east apartment is desirable. The lady denudes herself, takes a seat near the window, and takes in the warm rays of the sun. The effect is both beneficial and delightful. If, however, she be of a restless disposition, she may dance, instead of basking, in the sunlight. Or, if she be not fond of dancing, she may improve the shining hours by taking down her hair and brushing it, using sulphur water, pulverized borax dissolved in alcohol, or some similar dressing. It would be surprising to many ladies to see her carefully wiping the separate locks on a clean, white towel until the dust of the previous day is entirely removed. With such care it is not necessary to wash the head, and the hair under this treatment is invariably good.

One of the most useful articles of the toilet is a bottle of ammonia, and any lady who has once learned its value will never be without it. A few drops in the water takes the place of the usual amount of soap, and cleans out the pores of the skin as well as a bleach will do. Wash the face with a flesh-brush, and rub the lips well to tone their color. It is well to bathe the eyes before putting in the spirits, and if it is desirable to increase their brightness, this may be done by dashing soapsuds into them. Always rub the eyes, in washing, toward the nose. If the eyebrows are inclined to spread irregularly, pinch the hairs together where thickest. If they show a tendency to meet, this contact may be avoided by pulling out the hairs every morning before the toilet.

The dash of Orientalism in costume and lace now turns a lady's attention to her eyelashes, which are worthless if not long and drooping. Indeed, so prevalent is the desire for this beautiful feature that hair-dressers and ladies' artists have scores of customers under treatment for invigorating their stunted eyelashes and eyebrows. To obtain these fringed curtains, anoint the roots with a balsam made of two drachms of nitric oxid of mercury mixed with one of leaf lard. After an application wash the roots with a camel's hair brush dipped in warm milk. Tiny scissors are used, with which the lashes are carefully but slightly trimmed every other day. When obtained, refrain from rubbing or even touching the lids with the finger-nails. There is more beauty in a pair of well-kept eyebrows and full, sweeping eyelashes than people are aware of, and a very inattractive and lusterless eye assumes new beauty when it looks out from beneath elongated fringes. Many ladies have a habit of rubbing the corners of their eyes to remove the dust that will frequently accumulate there. Unless this operation is done with little friction it will be found that the growth of hair is very spare, and in that case it will become necessary to pencil the barren corners. Instead of putting cologne water on the handkerchief, which has come to be considered a vulgarism among ladies of correct tastes, the perfume is spent on the eyebrows and lobes of the ears.

If commenced in youth, thick lips may be reduced by compression, and thin linear ones are easily modified by suction. This draws the blood to the surfaces, and produces at first a temporary and, later, a permanent inflation. It is a mistaken belief that biting the lips reddens them. The skin of the lips is very thin, rendering them extremely susceptible to organic derangement, and if the atmosphere does not cause chaps or parchment, the result of such harsh treatment will develop into swelling or the formation of scars. Above all things, keep a sweet breath.

Everybody can not have beautiful hands, but there is no plausible reason for their being ill kept. Red hands may be overcome by soaking the feet in hot water as often as possible. If the skin is hard and dry, use tar or oat-meal soap, saturate them with glycerine, and wear gloves in bed. Never bathe them in hot water, and wash no oftener than is necessary. There are dozens of women with soft, white hands who do not put them in water once a month. Rubber gloves are worn in making the toilet, and they are cared for by an ointment of glycerine and rubbed dry with chamois-skin or cotton flannel. The same treatment is not unfrequently applied to the face with the most successful results. If such methods are used, it would be just as well to keep the knowledge of it from the gentlemen. We know of one beautiful lady who has not washed her face for three years, yet it is always clean, rosy, sweet and kissable. With some of her other secrets she gave it to her lover for safe keeping. Unfortunately, it proved to be her last gift to that gentleman, who declared in a subsequent note that "I can not reconcile my heart and my manhood to a woman who can get along without washing her face."

SOME OF THE SECRETS OF BEAUTY.

There is as much a "fashion" in complexion as there is in bonnets or boots. Sometimes nature is the mode, sometimes art. Just now the latter is in the ascendant, though, as a rule, only in that inferior phase which has not reached the "concealment of art"—the point where extremes meet and the perfection of artifice presents all the appearance of artlessness. No one of an observant turn of mind, who is accustomed to the sight of English maids and matrons, can deny that making-up, as at present practiced, partakes of the amateurish element. Impossible reds and whites grow still more impossibly red and white from week to week under the unskilled hands of the wearer of "false colors," who does not like to ask for advice on so delicate a subject, for, even were she willing to confess to the practice, the imputation of experience conveyed in the asking for counsel might be badly received, and would scarcely be in good taste.

The prevalent and increasing short-sightedness of our times is, perhaps, partly the cause of the excessive use of rouge and powder. The wielder of the powder puff sees herself afar off, as it were. She knows that she cannot judge of the effect of her complexion with her face almost touching its reflection in the glass, and, standing about a yard off, she naturally accentuates her roses and lilies in a way that looks very pleasing to her, but is rather startling to any one with longer sight. Nor can she tone down her rouge with the powdered hair that softened the artificial coloring of her grandmother when she had her day. Powder is only occasionally worn with evening dress, and it is by daylight that those dreadful bluish reds and whites look their worst.

On the other hand, there are some women so clever at making up their faces that one feels almost inclined to condone the practice in admiration of the result. These are the small minority, and are likely to remain so, for their secret is of a kind unlikely to be shared. The closest inspection of these cleverly managed complexions reveals no trace of art.

Notwithstanding the reticence of these skilled artists, an occasional burst of confidence has revealed a few of their means of accomplishing the great end of looking pretty. "Do you often do that?" said one of those clever ones, a matron of 37, who looked like a girl of 19, to a friend who was vigorously rubbing her cheeks with a coarse towel after a plentiful application of cold water.

"Yes, every time I come in from a walk, ride or drive. Why?"

"Well, no wonder you look older than you are. You are simply wearing your face out!"

"But I must wash?"

"Certainly, but not like that. Take a leaf out of my book; never wash you face just before going out into the fresh air, or just after coming in. Nothing is more injurious to the skin. Come to the glass. Do you notice a drawn look about your eyes and a general streakiness in the cheeks? That is the result of your violent assault upon your complexion just now. You look at this moment ten years older than you did twenty minutes ago in the park."

"Well, I really do. I look old enough to be your mother; but then, you are wonderful. You always look so young and fresh!"

"Because I never treat my poor face so badly as you do yours. I use rain-water, and if I cannot get that, I have the water filtered. When I dress for dinner I always wash my face with milk, adding just enough hot water to make it pleasant to use. A very soft sponge and very fine towel take the place of your terrible huckaback arrangement."

Two or three years ago a lady of Oriental parentage on her father's side spent a season in London society. Her complexion was brown, relieved by yellow, her features large and irregular, but redeemed by a pair of lovely and expressive eyes. So perfect was her taste in dress that she always attracted admiration wherever she went. Dressed in rich dark brown or dullest crimsons or russets, so that no one ever noticed much what she wore, she so managed that suggestions and hints—no more—of brilliant amber or promegranate scarlet should appear just where they imparted brilliancy to her deep coloring, and abstract the yellow from her skin. A knot of old gold satin under the rim of her bonnet, another at her throat, and others in among the lace at her wrists, brightened up the otherwise subdued tinting of her costume, so that it always looked as though it had been designed expressly for her by some great colorist. Here rouge was unnecessary. The surroundings were arranged to suit the complexion, instead of the complexion to suit the surroundings. There can be no doubt as to which is the method which best becomes the gentlewoman.

In addition to the disagreeable sensation of making-up, it must be remembered that the use of some of the white powders eventually destroys the texture of the skin, rendering it rough and coarse. Rimmel, the celebrated perfumer, in his "Book of Perfumes," says that rouge, being composed of cochineal and saffron, is harmless, but that white cosmetics consist occasionally of deleterious substances which may injure the health. He advises actors and actresses to choose cosmetics, especially the white, with the greatest care, and women of the world, who wish to preserve the freshness of their complexion, to observe the following recipe: Open air, rest, exercise and cold water.

In another part of this pleasant book the author says that *schonada*, a cosmetic used among the Arabs, is quite innocuous and at the same time effectual. "This cream, which consists of sublimated benzoin, acts upon the skin as a slight stimulant, and imparts perfectly natural colors during some hours without occasioning the inconveniences with which European cosmetics may justly be reproached." It is a well-known fact that bismuth, a white powder containing sugar of lead, injures the nerve-centers when constantly employed, and occasionally causes paralysis itself.

In getting up the eyes, nothing is injurious that is not dropped into them. The use of *kohl* or *kohol* is quite harmless, and, it must be confessed, very effective when applied—as the famous recipe for salad dressing enjoins with regard to the vinegar—by the hand of a miser. Modern Egyptian ladies make their *kohol* of the smoke produced by burning almonds. A small bag holding the bottle of *kohol*, and a pin, with a rounded point with which to apply it, form part of the toilet paraphernalia of all the beauties of Cairo, who make the immense mistake of getting up their eyes in an exactly similar manner, thus trying to reduce the endless variety of nature to one common pattern, a mistake that may be accounted for by the fact that the Arabs believe *kohol* to be a sovereign specific against ophthalmia. Their English sisters often make the same mistake without the same excuse. A hair-pin steeped in lampblack is the usual method of darkening the eyes in England, retribution following sooner or later in the shape of a total loss of the eyelashes. Eau de Cologne is occasionally dropped into the eyes, with the effect of making them brighter. The operation is painful, and it is said that half a dozen drops of whisky and the same quantity of Eau de Cologne, eaten on a lump of sugar, is quite as effective.

HIGH-HEELED BOOTS.

A lady looks infinitely taller and slimmer in a long dress than she does in a short costume, and there is always a way of showing the feet, if desired, by making the front quite short, which gives, indeed, a more youthful appearance to a train dress. The greatest attention must, of course, be paid to the feet with these short dresses, and I may here at once state that high heels are absolutely forbidden by fashion. Doctors, are you content? Only on cheap shoes and boots are they now made, and are only worn by common people. A good bootmaker will not make high heels now, even if paid double price to do so. Ladies —that is, real ladies—now wear flat-soled shoes and boots, *a la* Cinderella. For morning walking, boots or high Moliere shoes are worn.

If you wear boots you may wear any stockings you like, for no one sees them. But if you wear shoes you must adapt your stockings to your dress. Floss silk, Scotch thread, and even cotton stockings are worn for walking, silk stockings have returned into exclusively evening wear. Day stockings should be of the same color as the dress, but they may be shaded, or stripped, or dotted, just as you please. White stockings are absolutely forbidden for day wear—no one wears them—no one dares wear them under fashion's interdiction.

HOW TO APPEAR GRACEFUL IN WALKING.

The whole secret of standing and walking erect consists in keeping the chin well away from the breast. This throws the head upward and backward, and the shoulders will naturally settle backward and in their true position. Those who stoop in walking generally look downward. The proper way is to look straight ahead, upon the same level with your eyes, or if you are inclined to stoop, until that tendency is overcome, look rather above than below the level. Mountaineers are said to be as "straight as an arrow," and the reason is because they are obliged to look upward so much. It is simply impossible to stoop in walking if you will heed and practice this rule. You will notice that all round-shouldered persons carry the chin near the breast and pointed downward. Take warning in time, and heed grandmother's advice, for a bad habit is more easily prevented than cured. The habit of stooping when one walks or stands is a bad habit and especially hard to cure.

- - - MULTUM IN PARVO. - - -

HISTORY OF THE BIBLES OF THE WORLD.

The Bibles of the world are the koran of the Mohammedans, the tripitaka of the Buddhists, the five kings of the Chinese, the three vedas of the Hindoos, the zendavesta of the Parsees and the scriptures of the Christians. The koran, says the Chicago Times, is the most recent, dating from the seventh century after Christ. It is a compound of quotations from both the Old and the New Testaments and from the talmud. The tripitaka contain sublime morals and pure aspirations. Their author lived and died in the sixth century before Christ.

The sacred writings of the Chinese are called the five kings, the word "king" meaning web of cloth. From this it is presumed that they were originally written on five rolls of cloth. They contain wise sayings from the sages on the duties of life, but they can not be traced further back than the eleventh century before our era. The vedas are the most ancient books in the language of the Hindoos, but they do not, according to late commentators, antedate the twelfth before the Christian era. The zendavesta of the Parsees, next to our Bible, is reckoned among scholars as being the greatest and most learned of the sacred writings. Zoroaster, whose sayings it contains, lived and worked in the twelfth century before Christ. Moses lived and wrote the pentateuch 1,500 years before the birth of Jesus, therefore that portion of our Bible is at least 300 years older than the most ancient of other sacred writings. The eddas, a semi-sacred work of the Scandinavians, was first given to the world in the fourteen century A. D.

PRECIOUS STONES.

ARRANGED ACCORDING TO COLOR AND IN ORDER OF HARDINESS.

Limpid.—Diamond, Sapphire, Topaz, Rock-Crystal.
Blue.—Sapphire, Topaz, Indicolite, Turquoise, Spinel, Aquamarine, Kaynite.
Green.—Oriental Emerald, Chrysoberyl, Amazon Stone, Malachite, Emerald, Chrysoprase, Chrysolite.
Yellow.—Diamond, Topaz, Fire-Opal.
Red.—Sapphire-Ruby, Spinel-Ruby, Rubellite, Garnet, Brazilian-Topaz, Hyacinth, Carnelian.
Violet.—Oriental-Amethyst, Amethyst.
Black and Brown.—Diamond, Tourmaline, Hyacinth, Garnet.

HOW TO MEASURE CORN IN THE CRIB.

Rule: 1st. Measure the length, breadth and height of the crib inside the rail; multiply them together and divide by two, the result is the number of bushels of shelled corn.

2d. Level the corn so that it is of equal depth throughout, multiply the length, breath and depth together, and this product by four, and cut off one figure to the right of the product; the other will represent the number of bushels of shelled corn.

3d. Multiply length by height, and then by width, add two ciphers to the result and divide by 124; this gives the number of bushels of ear corn.

HOME DRESSMAKING.

The art of dressmaking in America has been of late years so simplified that almost anyone with a reasonable degree of executive ability can manufacture a fashionable costume by using an approved pattern and following the directions printed upon it, selecting a new pattern for each distinct style; while in Europe many ladies adhere to the old plan of cutting one model and using it for everything, trusting to personal skill or luck to gain the desired formation. However, some useful hints are given which are well worth offering after the paper pattern has been chosen.

The best dressmakers here and abroad use silk for lining, but nothing is so durable or preserves the material as well as a firm slate twill. This is sold double width and should be laid out thus folded: place the pattern upon it with the upper part towards the cut end, the selvedge for the fronts. The side pieces for the back will most probably be got out of the width, while the top of the back will fit in the intersect of the front. A yard of good stuff may be often saved by laying the pattern out and well considering how one part cuts into another. Prick the outline on to the lining; these marks serve as a guide for the tacking.

In forming the front side plaits be careful and do not allow a fold or crease to be apparent on the bodice beyond where the stitching commences. To avoid this, before beginning stick a pin through what is to be the top of the plait. The head will be on the right side, and holding the point, one can begin pinning the seam without touching the upper part of the bodice. To ascertain the size of the buttonholes put a piece of card beneath the button to be used and cut it an eighth of an inch on either side beyond. Having turned down the piece in front on the buttonhole side run a thread a sixteenth of an inch from the extreme edge, and again another the width of the card. Begin to cut the first buttonhole at the bottom of the bodice; and continue at equal distances. The other side of the bodice is left wide enough to come well under the buttonholes. The buttonholes must be laid upon it and a pin put through the center of each to mark where the button is to be placed. In sewing on the buttons put the stiches in horizontally; if perpendicularly they are likely to pucker that side of the bodice so much that it will be quite drawn up, and the buttons will not match the buttonholes.

A WOMAN'S SKIRTS.

Observe the extra fatigue which is insured to every woman in merely carrying a tray upstairs, from the skirts of the dress. Ask any young women who are studying to pass examinations whether they do not find loose clothes a *sine qua non* while poring over their books, and then realize the harm we are doing ourselves and the race by habitually lowering our powers of life and energy in such a manner. As a matter of fact it is doubtful whether any persons have ever been found who would say that their stays were at all tight; and, indeed, by a muscular contraction they can apparently prove that they are not so by moving them about on themselves, and thus probably believe what they say. That they are in error all the same they can easily assure themselves by first measuring round the waist outside the stays; then take them off, let them measure while they take a deep breath, with the tape merely laid on the body as if measuring for the quantity of braid to go round a dress, and mark the result. The injury done by stays is so entirely internal that it is not strange that the maladies caused by wearing them should be attributed to every reason under the sun except the true one, which is, briefly, that all the internal organs, being by them displaced, are doing their work imperfectly and under the least advantageous conditions; and are, therefore, exactly in the state most favorable to the development of disease, whether hereditary or otherwise.—*Macmillan's Magazine.*

TO MAKE THE SLEEVES.

As to sleeves. Measure from the shoulder to the elbow and again from elbow to the wrist. Lay these measurements on any sleeve patterns you may have, and lengthen and shorten accordingly. The sleeve is cut in two pieces, the top of the arm and the under part, which is about an inch narrower than the outside. In joining the two together, if the sleeve is at all tight, the upper part is slightly fulled to the lower at the elbow. The sleeve is sown to the armhole with no cordings now, and the front seam should be about two inches in front of the bodice.

Bodices are now worn very tight-fitting, and the French stretch the material well on the cross before beginning to cut out, and in cutting allow the lining to be slightly pulled, so that when on, the outside stretches to it and insures a better fit. An experienced eye can tell a French-cut bodice at once, the front side pieces being always on the cross. In dress cutting and fitting, as in everything else, there are failures and discouragements, but practice overrules these little matters, and "trying again" brings a sure reward in success.

A sensible suggestion is made in regard to the finish in necks of dresses for morning wear. Plain colors have rather a stiff appearance, tulle or crepe lisse frilling are expensive and frail, so it is a good idea to purchase a few yards of really good washing lace, about an inch and a half in depth; quill or plait and cut into suitable lengths to tack around the necks of dresses. This can be easily removed and cleaned when soiled. A piece of soft black Spanish lace, folded loosely around the throat close to the frillings, but below it, looks very pretty; or you may get three yards of scarf lace, trim the ends with frillings, place it around the neck, leaving nearly all the length in the right hand, the end lying upon the left shoulder being about half a yard long. Wind the larger piece twice around the throat, in loose, soft folds, and festoon the other yard and a half, and fasten with brooch or flower at the side.—*Philadelphia Times.*

DISCOVERY OF GOLD IN CALIFORNIA.

It was on the 19th day of January, 1848, that James W. Marshall, while engaged in digging a race for a saw-mill at Coloma, about thirty-five miles eastward from Sutter's Fort, found some pieces of yellow metal, which he and the half-dozen men working with him at the mill supposed to be gold. He felt confident that he had made a discovery of great importance, but he knew nothing of either chemistry or gold-mining, so he could not prove the nature of the metal nor tell how to obtain it in paying quantities. Every morning he went down to the race to look for the bits of metal; but the other men at the mill thought Marshall was very wild in his ideas, and they continued their labors in building the mill, and in sowing wheat and planting vegetables. The swift current of the mill-race washed away a considerable body of earthy matter, leaving the coarse particles of gold behind; so Marshall's collection of specimens continued to accumulate, and his associates began to think there might be something in his gold mines after all. About the middle of February, a Mr. Bennett, one of the party employed at the mill, went to San Francisco for the purpose of learning whether this metal was precious, and there he was introduced to Isaac Humphrey, who had washed for gold in Georgia. The experienced miner saw at a glance that

he had the true stuff before him, and, after a few inquiries, he was satisfied that the diggings must be rich. He made immediate preparation to visit the mill, and tried to persuade some of his friends to go with him; but they thought it would be only a waste of time and money, so he went with Bennett for his sole companion.

He arrived at Coloma on the 7th of March, and found the work at the mill going on as if no gold existed in the neighborhood. The next day he took a pan and spade, and washed some of the dirt in the bottom of the mill-race in places where Marshall had found his specimens, and, in a few hours, Humphrey declared that these mines were far richer than any in Georgia. He now made a rocker and went to work washing gold industriously, and every day yielded to him an ounce or two of metal. The men at the mill made rockers for themselves, and all were soon busy in search of the yellow metal. Everything else was abandoned; the rumor of the discovery spread slowly. In the middle of March Pearson B. Reading, the owner of a large ranch at the head of the Sacramento valley, happened to visit Sutter's Fort, and hearing of the mining at Coloma, he went thither to see it. He said that if similarity of formation could be taken as a proof, there must be gold mines near his ranch; so, after observing the method of washing, he posted off, and in a few weeks he was at work on the bars of Clear Creek, nearly two hundred miles northwestward from Coloma. A few days after Reading had left, John Bidwell, now representative of the northern district of the State in the lower House of Congress, came to Coloma, and the result of his visit was that, in less than a month, he had a party of Indians from his ranch washing gold on the bars of Feather River, twenty-five miles northwestward from Coloma. Thus the mines were opened at far distant points.

The first printed notice of the discovery of gold was given in the California newspaper published in San Francisco on the 15th of March. On the 29th of May the same paper, announcing that its publication would be suspended, says: "The whole country, from San Francisco to Los Angeles, and from the seashore to the base of the Sierra Nevada, resound the sordid cry of *gold! gold! gold!* while the field is left half planted, the house half built and everything neglected but the manufacture of pick and shovels, and the means of transportation to the spot where one man obtained one hundred and twenty-eight dollars' worth of the real stuff in one day's washing; and the average for all concerned, is twenty dollars per diem."

The first to commence quartz mining in California were Capt. Wm. Jackson and Mr. Eliason, both Virginians, and the first machine used was a Chilian mill.

The Reid Mine, in North Carolina, was the first gold mine discovered and worked in the United States, and the only one in North America from which, up to 1825, gold was sent to the Mint.

HOW TO MAKE ARTIFICIAL GOLD.

The following oroid or imitation gold is sometimes sold for the genuine article which it closely resembles. Pure copper, 100 parts by weight, is melted in a crucible, and then 6 parts of magnesia, 3.6 of sal-ammoniac, 1.8 of quicklime and 9. of tartar are added separately and gradually in the form of powder. The whole is then stirred for about half an hour, and 17 parts of zinc or tin in small grains are thrown in and thoroughly mixed. The cruicible is now covered and the mixture kept melted for half an hour longer, when it is skimmed and poured out.

Any imitation of gold may be detected by its weight, which is not one-half of what it should be, and by its dissolving in nitric acid while pure gold is untouched.

HOW TO TELL ANY PERSON'S AGE.

There is a good deal of amusement in the following magical table of figures. It will enable you to tell how old the young ladies are. Just hand this table to a young lady, and request her to tell you in which column or columns her age is contained, and add together the figures at the top of the columns in which her age is found, and you have the great secret. Thus, suppose her age to be 17, you will find that number in the first and fifth columns; add the first figures of these two columns.

Here is the magic table:

1	2	4	8	16	32
3	3	5	9	17	33
5	6	6	10	18	34
7	7	7	11	19	35
9	10	12	12	20	36
11	11	13	13	21	37
13	14	14	14	22	38
15	15	15	15	23	39
17	18	20	24	24	40
19	19	21	25	25	41
21	22	22	26	26	42
23	23	23	27	27	43
25	26	28	28	28	44
27	27	29	29	29	45
29	30	30	30	30	46
31	31	31	31	31	47
33	34	36	40	48	48
35	35	37	41	49	49
37	38	38	42	50	50
39	39	39	43	51	51
41	42	44	44	52	52
43	43	45	45	53	53
45	46	46	46	54	54
47	47	47	47	55	55
49	50	52	56	56	56
51	51	53	57	57	57
53	54	54	58	58	58
55	55	55	59	59	59
57	58	60	60	60	60
59	59	61	61	61	61
61	62	62	62	62	62
63	63	63	63	63	63

WHAT THE WHITE HOUSE COSTS.

Salary of President, $50,000; additional appropriations are about $75,000. A total of $125,000. The President has the following corps of assistants: Private Secretary, $3,250; Assistant Private Secretary, $2,250; Stenographer, $1,800; five Messengers, $1,200 each, $6,000; Steward—; two Doorkeepers, $1,200 each, $2,400; two Ushers, $1,200, $1,400, $2,600; Night Usher, $1,200; Watchman, $900, and a few other minor clerks and telegraph operators.

SUNDRIES.—Incidental expenses, $8,000; White House repairs—carpets and refurnishing, $12,500; fuel, $2,500; green-house, $4,000; gas, matches and stable, $15,000.

These amounts, with others of minor importance, consume the entire appropriations.

BUSINESS LAW.

Ignorance of the law excuses no one. It is a fraud to conceal a fraud. The law compels no one to do impossibilities. An agreement without consideration is void. Signatures made with a lead pencil are good in law. A receipt for money paid is not legally conclusive. The acts of one partner bind all the others. Contracts made on Sunday cannot be enforced. A contract made with a minor is void. A contract made with a lunatic is void. Principals are responsible for the acts of their agents.

Agents are responsible to their principals for errors. Each individual in a partnership is responsible for the whole amount of the debts of the firm. A note given by a minor is void. Notes bear interest only when so stated. It is legally necessary to say on a note "for value received." A note drawn on Sunday is void. A note obtained by fraud, or from a person in a state of intoxication, cannot be collected. If a note be lost or stolen, it does not release the maker; he must pay it. An endorser of a note is exempt from liability if not served with notice of its dishonor within twenty-four hours of its non-payment.

ITEMS WORTH REMEMBERING.

A sun bath is of more worth than much warming by the fire.

Books exposed to the atmosphere keep in better condition than if confined in a book-case. Pictures are both for use and ornament. They serve to recall pleasant memories and scenes; they harmonize with the furnishing of the rooms. If they serve neither of these purposes they are worse than useless; they only help fill space which would look better empty, or gather dust and make work to keep them clean.

A room filled with quantities of trifling ornaments has the look of a bazaar and displays neither good taste nor good sense. Artistic excellence aims to have all the furnishings of a high order of workmanship combined with simplicity, while good sense understands the folly of dusting a lot of rubbish.

A poor book had best be burned to give place to a better, or even to an empty shelf, for the fire destroys its poison, and puts it out of the way of doing harm.

Better economize in the purchasing of furniture or carpets than scrimp in buying good books or papers.

Our sitting-rooms need never be empty of guests or our libraries of society if the company of good books is admitted to them.

REMARKABLE CALCULATIONS REGARDING THE SUN.

The sun's average distance from the earth is about 91,500,000 miles. Since the orbit of the earth is elliptical, and the sun is situated at one of its foci, the earth is nearly 3,000,000 miles further from the sun in aphelion than in perihelion. As we attempt to locate the heavenly bodies in space, we are immediately startled by the enormous figures employed. The first number, 91,500,000 miles, is far beyond our grasp. Let us try to comprehend it. If there were air to convey a sound from the sun to the earth, and a noise could be made loud enough to pass that distance it would require over fourteen years for it to come to us. Suppose a railroad could be built to the sun. An express train traveling day and night at the rate of thirty miles an hour, would require 341 years to reach its destination. Ten generations would be born and would die; the young men would become gray haired, and their great-grandchildren would forget the story of the beginning of that wonderful journey, and could find it only in history, as we now read of Queen Elizabeth or of Shakespeare; the eleventh generation would see the solar depot at the end of the route. Yet this enormous distance of 91,500,000 miles is used as the unit for expressing celestial distances—as the foot-rule for measuring space; and astronomers speak of so many times the sun's distance as we speak of so many feet or inches.

Signs of Storms Approaching.—A ring around the sun or moon stands for an approaching storm, its near or distant approach being indicated by its larger or smaller circumference. When the sun rises brightly and immediately afterward becomes veiled with clouds, the farmer distrusts the day. Rains which begin early in the morning often stop by nine in place of "eleven," the hour specified in the old saw, "If it rains before seven."

On a still, quiet day, with scarcely the least wind afloat, the ranchman or farmer can tell the direction of impending storm by cattle sniffing the air in the direction whence it is coming. Lack of dew in summer is a rain sign. Sharp white frosts in autumn and winter precede damp weather, and we will stake our reputation as a prophet that three successive white frosts are an infallible sign of rain. Spiders do not spin their webs out of doors before rain. Previous to rain flies sting sharper, bees remain in their hives or fly but short distances, and almost all animals appear uneasy.

HOW TO DISTINGUISH GOOD MEAT FROM BAD MEAT.

1st. It is neither of a pale pink color nor of a deep purple tint, for the former is a sign of disease, and the latter indicates that the animal has not been slaughtered, but has died with the blood in it, or has suffered from acute fever.

2d. It has a marked appearance from the ramifications of little veins of fat among the muscles.

3d. It should be firm and elastic to the touch and should scarcely moisten the fingers—bad meat being wet and sodden and flabby with the fat looking like jelly or wet parchment.

4th. It should have little or no odor, and the odor should not be disagreeable, for diseased meat has a sickly cadaverous smell, and sometimes a smell of physic. This is very discoverable when the meat is chopped up and drenched with warm water.

5th. It should not shrink or waste much in cooking.

6th. It should not run to water or become very wet on standing for a day or two, but should, on the contrary, dry upon the surface.

7th. When dried at a temperature of 212 deg., or thereabouts, it should not lose more than from 70 to 74 per cent. of its weight, whereas bad meat will often lose as much as 80 per cent. The juice of the flesh is alkaline or neutral to test paper.

RAILROADS IN FINLAND.

People who think of Finland as a sub-arctic country of bleak and forbidding aspect may be surprised to hear that several railroads have already made a large part of the region accessible. A new line, 160 miles long, has just been opened to the heart of the country in the midst of great forests and perhaps the most wonderful lake region in the world. Sportsmen are now within less than a day's journey from St. Petersburg of central Finland, where there is the best of hunting and fishing and twenty hours of sunlight every summer day. The most unique of railroads, however, is still the little line in Norway, north of the arctic circle, carrying the product of far northern mines to the sea, and famous as the only railroad that has yet invaded the polar regions.

COMPARATIVE SIZE OF THE ARK AND THE GREAT EASTERN.

The following comparison between the size of Noah's ark and the Great Eastern, both being considered in point of tonnage, after the old law for calculating the tonnage of a vessel, exhibits a remarkable similarity. The cubit of the Bible, according to Sir Isaac Newton, is 20½ inches,

or, to be exact, 20.625 inches. Bishop Wilkins makes the cubit 20.88 inches. According to Newton the dimensions of the ark were: Length between perpendiculars, 515.62 feet; breadth, 84.94 feet; depth, 51.56 feet; keel, or length for tonnage, 464.08 feet. Tonnage, according to old law, 18,231 58-94. The measurements of the ark, according to Wilkins' calculations were: Length, 54700 feet; breadth, 91.16 feet; depth, 54.70 feet; keel, 492.31 feet. Tonnage, 21,761. Notice how surprisingly near the Great Eastern came to being constructed after the same plan: Length, 680 feet; breadth, 83 feet; depth, 60 feet; keel, 630 feet. Tonnage, 23,092.

FINGER NAILS AS AN INDICATION OF CHARACTER.

A white mark on the nail bespeaks misfortune.

Pale or lead-colored nails indicate melancholy people.

Broad nails indicate a gentle, timid, and bashful nature.

Lovers of knowledge and liberal sentiments have round nails.

People with narrow nails are ambitious and quarrelsome.

Small nails indicate littleness of mind, obstinacy and conceit.

Choleric, martial men, delighting in war, have red and spotted nails.

Nails growing into the flesh at the points or sides indicate luxurious tastes.

People with very pale nails are subject to much infirmity of the flesh and persecution by neighbors and friends.

DANGERS OF CELLULOID.

A curious accident, which happened recently in Paris, points out a possible danger in the wearing of combs and bracelets of celluloid. A little girl sat down before the fire to prepare her lessons. Her hair was kept back by a semi-circle comb of celluloid. As her head was bent forward to the fire this became warm, and suddenly burst into flames. The child's hair was partly burned off, and the skin of the head was so injured that several months after, though the burn was healed, the cicatrix formed a white patch on which no hair would grow. The burning point of celluloid is about 180 degrees, and the comb worn by the girl had attained that heat as it was held before the fire.

ODD FACTS ABOUT SHOES.

Grecian shoes were peculiar in reaching to the middle of the legs.

The present fashion of shoes was introduced into England in 1633.

In the ninth and tenth centuries the greatest princes of Europe wore wooden shoes.

Slippers were in use before Shakespeare's time, and were originally made "rights" and "lefts."

Shoes among the Jews were made of leather, linen, rush or wood; soldiers' shoes were sometimes made of brass or iron.

In the reign of William Rufus of England, in the eleventh century, a great beau, "Robert, the Horned," used shoes with sharp points, stuffed with tow, and twisted like rams' horns.

The Romans made use of two kinds of shoes—the solea, or sandal, which covered the sole of the foot, and was worn at home and in company, and the calceus, which covered the whole foot and was always worn with the toga when a person went abroad.

In the reign of Richard II., shoes were of such absurd length as to require to be supported by being tied to the knees with chains, sometimes of gold and silver. In 1463 the English parliament took the matter in hand and passed an act forbidding shoes with spikes more than two inches in length being worn and manufactured.

TABLE SHOWING THE AVERAGE VELOCITIES OF VARIOUS BODIES.

A man walks 3 miles per hour or 4 feet per second.
A horse trots 7 " " 10 " "
A horse runs 20 " " 29 " "
Steamboat runs 20 " " 26 " "
Sailing vessel runs 10 miles per hour or 14 feet per second.
Rapid rivers flow 3 " " 4 " "
A moderate wind blows 7 miles per hour or 10 feet per second.

A storm moves	36	"	"	52	"	"
A hurricane moves	80	"	"	117	"	"
A rifle ball	1000	"	"	1466	"	"
Sound	743	"	"	1142	"	"

Light, 192,000 miles per second.
Electricity, 288,000 miles per second.

QUANTITY OF OIL REQUIRED FOR DIFFERENT COLORS.

Heath & Miligan quote the following figures. They are color manufacturers:

100 parts (weight)	White Lead	require	12	parts of oil.
" "	Zinc White	"	14	"
" "	Green Chrome	"	15	"
" "	Chrome Yellow	"	19	"
" "	Vermilion	"	25	"
" "	Light Red	"	31	"
" "	Madder Lake	"	62	"
" "	Yellow Ochre	"	66	"
" "	Light Ochre	"	72	"
" "	Camels Brown	"	75	"
" "	Brown Manganese	require	87	parts of oil.
" "	Terre Verte	"	100	"
" "	Parisian Blue	"	106	"
" "	Burnt Terreverte	"	112	"
" "	Berlin Blue	"	112	"
" "	Ivory Black	"	112	"
" "	Cobalt	"	125	"
" "	Florentine Brown	"	150	"
" "	Burnt Terra Sienna	"	181	"
" "	Raw Terra Sienna	"	140	"

According to this table, a hundred parts of the quick drying white lead are ground with 12 parts of oil, and on the other hand slow drying ivory black requires 112 parts of oil.

PAINTING.

1 gallon Priming Color will cover 50 superficial yards.

"	White Zinc	"	50	"
"	White Paint	"	44	"
"	Lead Color	"	50	"
"	Black Paint	"	50	"
"	Stone Color	"	44	"
"	Yellow Paint	"	44	"
"	Blue Color	"	45	"
"	Green Paint	"	45	"

" Bright Emerald Green will cover 25 superficial yards.
" Bronze Green will cover 45 superficial yards.

One pound of paint will cover about four superficial yards the first coat, and about six yards each additional coat.

RAPID PROCESS OF MARKING GOODS AT ANY DESIRED PER CENT. PROFIT.

Retail merchants, in buying goods by wholesale, buy a great many articles by the dozen, such as boots and shoes, hats and caps, and notions of various kinds; now the merchant, in buying, for instance, a dozen hats, knows exactly what one of these hats will retail for in the market where

he deals; and unless he is a good accountant, it will often take him some time to determine whether he can afford to purchase the dozen hats and make a living profit by selling them by the single hat; and in buying his goods by auction, as the merchant often does, he has not time to make the calculation before the goods are bid off. He therefore loses the chance of making good bargains by being afraid to bid at random, or if he bids, and the goods are cried off, he may have made a poor bargain by bidding thus at a venture. It then becomes a useful and practical problem to determine instantly what per cent. he would gain if he retailed the hat at a certain price, to tell what an article should retail for to make a profit of 20 per cent.

Rule.—Divide what the articles cost per dozen by 10. which is done by removing the decimal point one place to the left.

For instance, if hats cost $17.50 per dozen, remove the decimal point one place to the left, making $1.75, what they should be sold for apiece to gain 20 per cent. on the cost. If they cost $31.00 per dozen, they should be sold at $3.10 apiece, etc.

THE SEVEN WONDERS OF THE WORLD.

Pyramids of Egypt.

Tower, Walls and Terrace Hanging Gardens of Babylon.

Statue of Jupiter Olympus, on the Capitoline Hill, at Rome.

Temple of Diana, at Ephesus.

Pharos, or watch-tower, at Alexandria, Egypt.

Colossus of Rhodes, a statue 105 feet high; overthrown by an earthquake 224 B. C.

Mausoleum at Halicarnassus, a Grecian-Persian city in Asia Minor.

HEAT AND COLD.

Degrees of heat above zero at which substances melt:—Wrought iron, 3,980 degrees; cast iron, 3,479; platinum, 3,080; gold, 2,590; copper, 2,548; steel, 2,500; glass, 2,377; brass, 1,900; silver, 1,250; antimony, 951; zinc, 740; lead, 594; tin, 421; arsenic, 365; sulphur, 226; beeswax, 151; gutta percha, 145; tallow, 97; lard, 95; pitch, 91; ice, 33.

Degrees of heat above zero at which substances boil:—Ether, 98 degrees; alcohol, 173; water, 212; petroleum, 306; linseed oil, 640; blood heat, 98; eggs hatch, 104.

QUANTITY OF SEED TO AN ACRE.

Wheat, 1½ to 2 bu.; rye, 1½ to 2 bu.; oats, 3 bu.; barley, 2 bu.; buckwheat, ½ bu.; corn, broadcast, 4 bu.; corn, in drills, 2 to 3 bu.; corn, in hills, 4 to 8 qts.; broom corn, ½ bu.; potatoes, 10 to 15 bu.; rutabagas, ¾ lbs.; millet, ¼ bu.; clover, white, 4 qts.; clover, red, 8 qts.; timothy, 6 qts.; orchard grass, 2 qts.; red top, 1 to 2 pks.; blue grass, 2 bu.; mixed lawn grass, ½ bu.; tobacco, 2 ozs.

SOLUBLE GLASS FOR FLOORS.

Instead of the old-fashioned method of using wax for polishing floors, etc., soluble glass is now employed to great advantage. For this purpose the floor is first well cleaned, and then the cracks well filled up with a cement of water-glass and powdered chalk or gypsum. Afterward, a water-glass of 60° to 65°, of the thickness of syrup, is applied by means of a stiff brush. Any desired color may be imparted to the floor in a second coat of the water-glass, and additional coats are to be given until the requisite polish is obtained. A still higher finish may be given by pummicing off the last layer, and then putting on a coating of oil.

DURABILITY OF A HORSE.

A horse will travel 400 yards in 4½ minutes at a walk, 400 yards in 2 minutes at a trot, and 400 yards in 1 minute at a gallop. The usual work of a horse is taken at 22,500 lbs. raised 1 foot per minute, for 8 hours per day. A horse will carry 250 lbs. 25 miles per day of 8 hours. An average draught-horse will draw 1,600 lbs. 23 miles per day on a level road, weight of wagon included. The average weight of a horse is 1,000 lbs.; his strength is equal to that of 5 men. In a horse mill moving at 3 feet per second, track 25 feet diameter, he exerts with the machine the power of 4½ horses. The greatest amount a horse can pull in a horizontal line is 900 lbs.; but he can only do this momentarily, in continued exertion, probably half of this is the limit. He attains his growth in 5 years, will live 25, average 16 years. A horse will live 25 days on water, without solid food, 17 days without eating or drinking, but only 5 days on solid food, without drinking.

A cart drawn by horses over an ordinary road will travel 1.1 miles per hour of trip. A 4-horse team will haul from 25 to 36 cubic feet of lime stone at each load. The time expended in loading, unloading, etc., including delays, averages 35 minutes per trip. The cost of loading and unloading a cart, using a horse cram at the quarry, and unloading by hand, when labor is $1.25 per day, and a horse 75 cents, is 25 cents per perch=24.75 cubic feet. The work done by an animal is greatest when the velocity with which he moves is ⅛ of the greatest with which he can move when not impeded, and the force then exerted .45 of the utmost force the animal can exert at a dead pull.

COMPARATIVE COST OF FREIGHT BY WATER AND RAIL.

It has been proved by actual test that a single tow-boat can transport at one trip from the Ohio to New Orleans 29,000 tons of coal, loaded in barges. Estimating in this way the boat and its tow, worked by a few men, carries as much freight to its destination as 3,000 cars and 100 locomotives, manned by 600 men, could transport.

HINTS TO YOUNG HOUSEWIVES.

Glycerine does not agree with a dry skin.

If you use powder always wash it off before going to bed.

When you give your cellar its spring cleaning, add a little copperas water and salt to the whitewash.

A little ammonia and borax in the water when washing blankets keeps them soft and prevents shrinkage.

Sprinkling salt on the top and at the bottom of garden walls is said to keep snails from climbing up or down.

For relief from heartburn or dyspepsia, drink a little cold water in which has been dissolved a teaspoonful of salt.

For hoarseness, beat a fresh egg and thicken it with fine white sugar. Eat of it freely and the hoarseness will soon be relieved.

If quilts are folded or rolled tightly after washing, then beaten with a rolling pin or potato masher, it lightens up the cotton and makes them seem soft and new.

Chemists say that it takes more than twice as much sugar to sweeten preserves, sauce, etc., if put in when they begin to cook as it does to sweeten after the fruit is cooked.

Tar may be removed from the hands by rubbing with the outside of fresh orange or lemon peel and drying immediately. The volatile oils dissolve the tar so that it can be rubbed off.

Moths or any summer flying insects may be enticed to destruction by a bright tin pan half filled with kerosene set in a dark corner of the room. Attracted by the bright pan, the moth will meet his death in the kerosene.

It may be worth knowing that water in which three or four onions have been boiled, applied with a gilding brush to the frames of pictures and chimney glasses, will prevent flies from lighting on them and will not injure the frames.

SUPERSTITIONS REGARDING BABIES.

It is believed by many that if a child cries at its birth and lifts up only one hand, it is born to command. It is thought very unlucky not to weigh the baby before it is dressed. When first dressed the clothes should not be put on over the head, but drawn on over the feet, for luck. When first taken from the room in which it was born it must be carried up stairs before going down, so that it will rise in the world. In any case it must be carried up stairs or up the street, the first time it is taken out. It is also considered in England and Scotland unlucky to cut the baby's nails or hair before it is twelve months old. The saying:

Born on Monday, fair in the face;
Born on Tuesday, full of God's grace;
Born on Wednesday, the best to be had;
Born on Thursday, merry and glad;
Born on Friday, worthily given;
Born on Saturday, work hard for a living;
Born on Sunday, shall never know want,

is known with various changes all over the Christian world; one deviation from the original makes Friday's child "free in giving." Thursday has one very lucky hour just before sunrise.

The child that is born on the Sabbath day
Is bonny and good and gay,

While

He who is born on New Year's morn
Will have his own way as sure as you're born.

And

He who is born on Easter morn
Shall never know care, or want, or harm.

SECRET ART OF CATCHING FISH.

Put the oil of rhodium on the bait, when fishing with a hook, and you will always succeed.

TO CATCH FISH.

Take the juice of smallage or lovage, and mix with any kind of bait. As long as there remain any kind of fish within yards of your hook, you will find yourself busy pulling them out.

CERTAIN CURE FOR DRUNKENNESS.

Take of sulphate of iron 5 grains, magnesia 10 grains, peppermint water 11 drachms, spirits of nutmeg 1 drachm. Administer this twice a day. It acts as a tonic and stimulant and so partially supplies the place of the accustomed liquor, and prevents that absolute physical and moral prostration that follows a sudden breaking off from the use of stimulating drinks.

LADIES' STAMPING POWDER.

For use in stamping any desired pattern upon goods for needle work, embroidery, etc. Draw pattern upon heavy paper, and perforate with small holes all the lines with some sharp instrument, dust the powder through, remove the pattern and pass a warm iron over the fabric, when the pattern will become fixed. Any desired color can be used, such as Prussian blue, chrome green, yellow, vermilion, etc. Fine white rosin, 2 ounces; gum sandarach, 4 ounces; color, 2 ounces. Powder very fine, mix, and pass through a sieve.

SALARIES OF THE UNITED STATES OFFICERS, PER ANNUM.

President, Vice-President and Cabinet.—President, $50,000; Vice-President, $8,000; Cabinet Officers, $8,000 each.

United States Senators.—$5,000, with mileage.

Congress.—Members of Congress, $5,000, with mileage.

Supreme Court.—Chief Justice, $10,500; Associate Justices, $10,000.

Circuit Courts.—Justices of Circuit Courts, $6,000.

Heads of Departments.—Supt. of Bureau of Engraving and Printing, $4,500; Public Printer, $4,500; Supt. of Census, $5,000; Supt. of Naval Observatory, $5,000; Supt. of the Signal Service, $4,000; Director of Geological Surveys, $6,000; Director of the Mint, $4,500; Commissioner of General Land Office, $4,000; Commissioner of Pensions, $3,600; Commissioner of Agriculture, $3,000; Commissioner of Indian Affairs, $3,000; Commissioner of Education $3,000; Commander of Marine Corps, $3,500; Supt. of Coast and Geodetic Survey, $6,000.

United States Treasury.—Treasurer, $6,000; Register of Treasury, $4,000; Commissioner of Customs, $4,000.

Internal Revenue Agencies.—Supervising Agents, $12 per day; 34 other agents, per day, $6 to $8.

Postoffice Department, Washington.—Three Assistant Postmaster-Generals, $3,500; Chief Clerk, $2,200.

Postmasters.—Postmasters are divided into four classes. First class, $3,000 to $4,000 (excepting New York City, which is $8,000); second class, $2,000 to $3,000; third class, $1,000 to $2,000; fourth class, less than $1,000. The first three classes are appointed by the President, and confirmed by the Senate; those of fourth class are appointed by the Postmaster-General.

Diplomatic appointments.—Ministers to Germany, Great Britain, France and Russia, $17,500; Ministers to Brazil, China, Austria-Hungary, Italy, Mexico, Japan and Spain, $12,000; Ministers to Chili, Peru and Central Amer., $10,000; Ministers to Argentine Confederation, Hawaiian Islands, Belgium, Hayti, Columbia, Netherlands, Sweden, Turkey and Venezuela, $7,500; Ministers to Switzerland, Denmark, Paraguay, Bolivia and Portugal, $5,000; Minister to Liberia, $4,000.

Army Officers.—General, $13,500; Lieut.-General, $11,000; Major-General, $7,500; Brigadier-General, $5,500; Colonel, $3,500; Lieutenant-Colonel, $3,000; Major, $2,500; Captain, mounted, $2,000; Captain, not mounted, $1,800; Regimental Adjutant, $1,800; Regimental Quartermaster, $1,800; 1st Lieutenant, mounted, $1,600; 1st Lieutenant, not mounted, $1,500; 2d Lieutenant, mounted, $1,500; 2d Lieutenant, not mounted, $1,400; Chaplain, $1,500.

Navy Officers.—Admiral, $13,000; Vice-Admiral, $9,000; Rear-Admirals, $6,000; Commodores, $5,000; Captains, $45,000; Commanders, $3,500; Lieut.-Commanders, $2,800; Lieutenants, $2,400; Masters, $1,800; Ensigns, $1,200; Midshipmen, $1,000; Cadet Midshipmen, $500; Mates, $900; Medical and Pay Directors and Medical and Pay Inspectors and Chief Engineers, $4,400; Fleet Surgeons, Fleet Paymasters and Fleet Engineers, $4,400; Surgeons and Paymasters, $2,800; Chaplains, $2,500.

CHRONOLOGY OF IMPORTANT EVENTS.

BEFORE CHRIST.

The Deluge	2348
Babylon built	2247
Birth of Abraham	1993
Death of Joseph	1635
Moses born	1571
Athens founded	1556
The Pyramids built	1250
Solomon's Temple finished	1004
Rome founded	753
Jerusalem destroyed	587
Babylon taken by Jews	538
Death of Socrates	400
Rome taken by the Gauls	835
Paper invented in China	170
Carthage destroyed	146
Cæsar landed in Britain	55
Cæsar killed	44
Birth of Christ	0

AFTER CHRIST.

Death of Augustus	14
Pilate, governor of Judea	27
Jesus Christ crucified	33
Claudius visited Britain	43
St. Paul put to death	67
Death of Josephus	93
Jerusalem rebuilt	131
The Romans destroyed 580,000 Jews and banished the rest from Judea	135
The Bible in Gothic	373
Horseshoes made of iron	481
Latin tongue ceased to be spoken	580
Pens made of quills	635
Organs used	660
Glass in England	663
Bank of Venice established	1157
Glass windows first used for lights	1180
Mariner's compass used	1200
Coal dug for fuel	1234
Chimneys first put to houses	1236
Spectacles invented by an Italian	1240
The first English House of Commons	1258
Tallow candles for lights	1290
Paper made from linen	1302
Gunpowder invented	1340
Woolen cloth made in England	1341
Printing invented	1436
The first almanac	1470
America discovered	1492
First book printed in England	1507
Luther began to preach	1517
Interest fixed at ten per cent. in England	1547
Telescopes invented	1549
First coach made in England	1564
Clocks first made in England	1568
Bank of England incorporated	1594
Shakespeare died	1616
Circulation of the blood discovered	1619
Barometer invented	1623
First newspaper	1629
Death of Galileo	1643
Steam engine invented	1649
Great fire in London	1666
Cotton planted in the United States	1759
Commencement of the American war	1775
Declaration of American Independence	1776
Recognition of American Independence	1782
Bank of England suspended cash payment	1791
Napoleon I. crowned emperor	1804
Death of Napoleon	1820
Telegraph invented by Morse	1832
First daguerreotype in France	1839
Beginning of the American civil war	1861
End of the American civil war	1865
Abraham Lincoln died	1865
Great Chicago Fire	1871
Jas. A. Garfield died	1881

INTERESTING FACTS ABOUT OUR BODIES.

The weight of the male infant at birth is 7 lbs. avoirdupois; that of the female is not quite 6½ lbs. The maximum weight (140½ lbs.) of the male is attained at the age of 40; that of the female (nearly 124 lbs.) is not attained until 50; from which ages they decline afterward, the male to 127¼ lbs., the female to 100 lbs., nearly a stone. The full-grown adult is 20 times as heavy as a new-born infant. In the first year he triples his weight, afterwards the growth proceeds in geometrical progression, so that if 50 infants in their first year weigh 1,000 lbs., they will in the second weigh 1,210 lbs.; in the third 1,331; in the fourth 1464 lbs.; the term remaining very constant up to the ages of 11-12 in females, and 12-13 in males, where it must be nearly doubled; afterwards it may be continued, and will be found very nearly correct up to the age of 18 or 19, when the growth proceeds very slowly. At an equality of age the male is generally heavier than the female. Towards the age of 12 years only an individual of each sex has the same weight. The male attains the maximum weight at about the age of 40, and he begins to lose it very sensibly toward 60. At 80 he loses about 13.2328 lbs., and the stature is diminished 2.756 inches. Females attain their maximum weight at about 50. The mean weight of a mature man is 104 lbs., and of an average woman 94 lbs. In old age they lose about 12 or 14 lbs. Men weigh most at 40, women at 50, and begin to lose weight at 60. The mean weight of both sexes in old age is that which they had at 19.

When the male and female have assumed their complete development they weigh almost exactly 20 times as much as at birth, while the stature is about 3½ times greater.

Children lose weight during the first three days after birth; at the age of a week they sensibly increase; after one year they triple their weight; then they require six years to double their weight, and 13 to quadruple it.

It has been computed that nearly two years' sickness is experienced by every person before he is 70 years old, and therefore that 10 days per annum is the average sickness of human life. Till 40 it is but half, and after 50 it rapidly increases. The mixed and fanciful diet of man is considered the cause of numerous diseases from which animals are exempt. Many diseases have abated with changes of diet, and others are virulent in particular countries, arising from peculiarities.

Human Longevity.—Of 100,000 male and female children, in the first month they are reduced to 90,396, or nearly a tenth. In the second, to 87,936. In the third, to 86,175. In the fourth, to 84,720. In the fifth, to 83,571. In the sixth, to 82,526, and at the end of the first year to 77,528, the deaths being 2 to 9. The next four years reduce the 77,528 to 62,448, indicating 37,552 deaths before the completion of the fifth year.

At 25 years the 100,000 are half, or 49,995; at 52, one-third. At 58½, a fourth, or 25,000; at 67, a fifth; at 76, a tenth; at 81, a twentieth, or 5,000; and ten attain 100. Children die in large proportions because their diseases cannot be explained, and because the organs are not habituated to the functions of life. The mean of life varies in

different countries from 40 to 45. A generation from father to son is about 30 years; of men in general five-sixths die before 70, and fifteen-sixteenths before 80. After 80 it is rather endurance than enjoyment. The nerves are blunted, the senses fail, the muscles are rigid, the softer tubes become hard, the memory fails, the brain ossifies, the affections are buried, and hope ceases. The remaining one-sixteenth die at 80; except a one-thirty-third, at 90. The remainder die from inability to live, at or before 100.

About the age of 36 the lean man usually becomes fatter and the fat man leaner. Again, between the years of 43 and 50 his appetite fails, his complexion fades, and his tongue is apt to be furred on the least exertion of body or mind. At this period his muscles become flabby, his joints weak; his spirits droop, and his sleep is imperfect and unrefreshing. After suffering under these complaints a year, or perhaps two, he starts afresh with renewed vigor, and goes on to 61 or 62, when a similar change takes place, but with aggravated symptoms. When these grand periods have been successively passed, the gravity of incumbent years is more strongly marked, and he begins to boast of his age.

In Russia, much more than in any other country, instances of longevity are numerous, if true. In the report of the Holy Synod, in 1827, during the year 1825, and only among the Greek religion, 848 men had reached upward of 100 years of age; 32 had passed their 120th year, 4 from 130 to 135. Out of 606,818 men who died in 1826, 2,765 were above 90; 1,432 above 95, and 848 above 100 years of age. Among this last number 88 were above 115; 24 more than 120; 7 above 125, and one 130. Riley asserts that Arabs in the Desert live 200 years.

On the average, men have their first-born at 30 and women at 28. The greatest number of deliveries take place between 25 and 35. The greatest number of deliveries take place in the winter months, and in February, and the smallest in July, *i. e.*, to February, as 4 to 5 in towns and 3 to 4 in the country. The night births are to the day as 5 to 4.

Human Strength.—In Schulze's experiments on human strength, he found that men of five feet, weighing 126 lbs., could lift vertically 156 lbs. 8 inches; 217 lbs. 1.2 inches. Others, 6.1 feet, weighing 183 lbs., 156 lbs. 13 inches, and 217 lbs. 6 inches; others 6 feet 3 inches, weighing 158 lbs., 156 lbs. 16 inches, and 217 lbs. 9 inches. By a great variety of experiments he determined the mean human strength at 30 lbs., with a velocity of 2.5 feet per second; or it is equal to the raising half a hogshead 10 feet in a minute.

RULES FOR SPELLING.

Words ending in *e* drop that letter before the termination *able*, as in move, movable; unless ending in *ce* or *ge*, when it is retained, as in change, changeable, etc.

Words of one syllable, ending in a consonant, with a single vowel before it, double the consonants in derivatives; as, ship, shipping, etc. But if ending in a consonant with a double vowel before it, they do not double the consonant in derivatives; as, troop, trooper, etc.

Words of more than one syllable, ending in a consonant preceded by a single vowel, and accented on the last syllable, double that consonant in derivatives; as, commit, committed; but except chagrin, chagrined.

All words of one syllable ending in *l*, with a single vowel before it, have *ll* at the close; as mill, sell.

All words of one syllable ending in *l*, with a double vowel before it, have only one *l* at the close; as mail, sail.

The words foretell, distill, instill and fulfill, retain the *ll* of their primitives. Derivatives of dull, skill, will and full also retain the *ll* when the accent falls on these words; as dullness, skillfull, willfull, fullness.

Words of more than one syllable ending in *l* have only one *l* at the close; as delightful, faithful; unless the accent falls on the last syllable; as befall, etc.

Words ending in *l*, double the letter in the termination *ly*.

Participles ending in *ing*, from verbs ending in *e*, lose the final *e*; as have, having; make, making, etc; but verbs ending in *ee* retain both; as see, seeing. The word dye, to color, however, must retain the *e* before *ing*.

All verbs ending in *ly*, and nouns ending in *ment*, retain the *e* final of the primitives; as brave, bravely; refine, refinement; except words ending in *dge*; as, acknowledge, acknowledgment.

Nouns ending in *y*, preceded by a vowel, form their plural by adding *s*; as money, moneys; but if *y* is preceded by a consonant, it is changed to *ies* in the plural; as bounty, bounties.

Compound words whose primitives end in *y*, change the *y* into *i*; as beauty, beautiful.

THE USE OF CAPITALS.

Every entire sentence should begin with a capital.

Proper names, and adjectives derived from these, should begin with a capital.

All appellations of the Deity should begin with a capital.

Official and honorary titles should begin with a capital.

Every line of poetry should begin with a capital.

Titles of books and the heads of their chapters and divisions are printed in capitals.

The pronoun I and the exclamation O are always capitals.

The days of the week and the months of the year begin with capitals.

Every quotation should begin with a capital letter.

Names of religious denominations begin with capitals.

In preparing accounts each item should begin with a capital.

Any word of very special importance may begin with a capital.

TWENTY CHOICE COURSE DINNER MENUS.

PREPARED EXPRESSLY FOR WEBSTER'S ENCYCLOPÆDIA.

1. Rice Soup, Baked Pike, Mashed Potatoes, Roast of Beef, Stewed Corn, Chicken Fricassee, Celery Salad, Compote of Oranges, Plain Custard, Cheese, Wafers, Coffee.

2. Mutton Soup, Fried Oysters, Stewed Potatoes, Boiled Corn Beef, Cabbage, Turnips, Roast Pheasants, Onion Salad, Apple Pie, White Custard, Bent's Water Crackers, Cheese, Coffee.

3. Oyster Soup, Roast Mutton, Baked Potatoes, Breaded Veal Cutlets, Tomato Sauce, Baked Celery, Cabbage Salad, Apple Custard, Sponge Cake, Cheese, Coffee.

4. Macaroni Soup, Boiled Chicken, with Oysters. Mutton Chops, Creamed Potatoes, Stewed Tomatoes, Pickled Beets, Peaches and Rice, Plain Cake, Cheese, Coffee.

5. Tapioca Soup, Boiled Halibut, Duchesse Potatoes, Roast Beef Tongue, Canned Peas, Baked Macaroni, with Gravy, Fried Sweet Potatoes, Beet Salad, Cornstarch Pudding, Jelly Tarts, Cheese, Wafers, Coffee.

6. Vegetable Soup, Boiled Trout, Oyster Sauce, Roast Veal, with Dressing, Boiled Potatoes, Stewed Tomatoes, Corn, Egg Salad, Snow Cream, Peach Pie, Sultana Biscuit, Cheese, Coffee.

7. Potato Soup, Oyster Patties, Whipped Potatoes, Roast Mutton, with Spinach, Beets, Fried Parsnips, Egg

Sauce, Celery Salad, Boiled Custard, Lemon Tarts, White Cake, Cheese, Coffee.

8. Veal Soup, Boiled Shad, Caper Sauce, Porterhouse Steak, with Mushrooms, Pigeon Pie, Mashed Potatoes, Pickles, Rice Sponge Cakes, Cheese, Canned Apricots with Cream, Coffee.

9. Giblet Soup, Scalloped Clams, Potato Cakes, Lamb Chops, Canned Beans, Tomatoes, Sweet Potatoes, Salmon Salad, Charlotte Russe, Apricot Tarts, Cheese, Coffee.

10. Vermicelli Soup, Fried Small Fish, Mashed Potatoes, Roast Beef, Minced Cabbage, Chicken Croquettes, Beet Salad, Stewed Pears, Plain Sponge Cake, Cheese, Coffee.

11. Oxtail Soup, Fricasseed Chicken with Oysters, Breaded Mutton Chops, Turnips, Duchesse Potatoes, Chow-chow Salad, Chocolate Pudding, Nut Cake, Cheese, Coffee.

12. Barley Soup, Boiled Trout, Creamed Potatoes, Roast Loin of Veal, Stewed Mushrooms, Broiled Chicken, Lettuce Salad, Fig Pudding, Wafers, Cheese, Coffee.

13. Noodle Soup, Salmon, with Oyster Sauce, Fried Potatoes, Glazed Beef, Boiled Spinach, Parsnips, with Cream Sauce, Celery, Plain Rice Pudding, with Custard Sauce, Current Cake, Cheese, Coffee.

14. Lobster Soup, Baked Ribs of Beef, with Browned Potatoes, Boiled Duck, with Onion Sauce, Turnips, Stewed Tomatoes, Lettuce, Delmonico Pudding, Cheese, Sliced Oranges, Wafers, Coffee.

15. Chicken Broth, Baked Whitefish, Boiled Potatoes, Canned Peas, Mutton Chops, Tomatoes, Beets, Celery Salad, Apple Trifle, Lady Fingers, Cheese, Coffee.

16. Sago Soup, Boiled Leg of Mutton, Caper Sauce, Stewed Potatoes, Canned Corn, Scalloped Oysters, with Cream Sauce, Celery and Lettuce Salad, Marmalade Fritters, Apple Custard, Cheese Cakes, Coffee.

17. Vegetable Soup, Broiled Shad, Lyonnaise Potatoes, Pork Chops, with Sage Dressing, Parsnip Fritters, Macaroni and Gravy, Cauliflower Salad, Rhubarb Tarts, Silver Cake, Cheese, Coffee.

18. Chicken Soup, with Rice, Codfish, Boiled, with Cream Sauce, Roast Veal, Tomatoes, Oyster Salad, Boiled Potatoes, Asparagus, Orange Jelly, White Cake, Cheese, Coffee.

19. Macaroni Soup, Fried Shad, Tomato Sauce, Roast Mutton, Mashed Potatoes, Boiled Tongue, with Mayonnaise Dressing, Fried Parsnips, Canned Beans, Lemon Puffs, Cheese Cakes, Fruit, Coffee.

20. Scotch Broth, Baked Halibut, Boiled Potatoes, Breaded Mutton Chops, Tomato Sauce, Spinach, Bean Salad, Asparagus and Eggs, Peach Batter Pudding, with Sauce, Wafers, Cheese, Coffee.

TERMS USED IN MEDICINE.

Anthelmintics are medicines which have the power of destroying or expelling worms from the intestinal canal.

Antiscorbutics are medicines which prevent or cure the scurvy.

Antispasmodics are medicines given to relieve spasm, or irregular and painful action of the muscles or muscular fibers, as in Epilepsy, St. Vitus' Dance, etc.

Aromatics are medicines which have a grateful smell and agreeable pungent taste.

Astringents are those remedies which, when applied to the body, render the solids dense and firmer.

Carminatives are those medicines which dispel flatulency of the stomach and bowels.

Cathartics are medicines which accelerate the action of the bowels, or increase the discharge by stool.

Demulcents are medicines suited to prevent the action of acrid and stimulating matters upon the mucous membranes of the throat, lungs, etc.

Diaphoretics are medicines that promote or cause perspirable discharge by the skin.

Diuretics are medicines which increase the flow of urine by their action upon the kidneys.

Emetics are those medicines which produce vomiting.

Emmenagogues are medicines which promote the menstrual discharge.

Emollients are those remedies which, when applied to the solids of the body, render them soft and flexible.

Errhines are substances which, when applied to the lining membrane of the nostrils, occasion a discharge of mucous fluid.

Epispastices are those which cause blisters when applied to the surface.

Escharotics are substances used to destroy a portion of the surface of the body, forming sloughs.

Expectorants are medicines capable of facilitating the excretion of mucous from the chest.

Narcotics are those substances having the property of diminishing the action of the nervous and vascular systems, and of inducing sleep.

Rubefacients are remedies which excite the vessels of the skin and increase its heat and redness.

Sedatives are medicines which have the power of allaying the actions of the systems generally, or of lessening the exercise of some particular function.

Sialagogues are medicines which increase the flow of the saliva.

Stimulants are medicines capable of exciting the vital energy, whether as exerted in sensation or motion.

Tonics are those medicines which increase the tone or healthy action, or strength of the living system.

RULES FOR THE PRESERVATION OF HEALTH.

Pure atmospheric air is composed of nitrogen, oxygen and a very small proportion of carbonic acid gas. Air once breathed has lost the chief part of its oxygen, and acquired a proportionate increase of carbonic acid gas. Therefore, health requires that we breathe the same air once only.

The solid part of our bodies is continually wasting and requires to be repaired by fresh substances. Therefore, food, which is to repair the loss, should be taken with due regard to the exercise and waste of the body.

The fluid part of our bodies also wastes constantly; there is but one fluid in animals, which is water. Therefore, water only is necessary, and no artifice can produce a better drink.

The fluid of our bodies is to the solid in proportion as nine to one. Therefore, a like proportion should prevail in the total amount of food taken.

Light exercises an important influence upon the growth and vigor of animals and plants. Therefore, our dwellings should freely admit the sun's rays.

Decomposing animal and vegetable substances yield various noxious gases, which enter the lungs and corrupt the blood. Therefore, all impurities should be kept away from our abodes, and every precaution be observed to secure a pure atmosphere.

Warmth is essential to all the bodily functions. Therefore, an equal bodily temperature should be maintained by exercise, by clothing or by fire.

Exercise warms, invigorates and purifies the body; clothing preserves the warmth the body generates; fire imparts warmth externally. Therefore, to obtain and preserve warmth, exercise and clothing are preferable to fire.

Fire consumes the oxygen of the air, and produces noxious gases. Therefore, the air is less pure in the presence of candles, gas or coal fire, than otherwise, and the deterioration should be repaired by increased ventilation.

The skin is a highly-organized membrane, full of minute pores, cells, blood-vessels, and nerves; it imbibes moisture or throws it off according to the state of the atmosphere or the temperature of the body. It also "breathes," like the lungs (though less actively). All the internal organs sympathize with the skin. Therefore, it should be repeatedly cleansed.

Late hours and anxious pursuits exhaust the nervous system and produce disease and premature death. Therefore, the hours of labor and study should be short.

Mental and bodily exercise are equally essential to the general health and happiness. Therefore, labor and study should succeed each other.

Man will live most happily upon simple solids and fluids, of which a sufficient but temperate quantity should be taken. Therefore, over-indulgence in strong drinks, tobacco, snuff, opium, and all mere indulgences, should be avoided.

Sudden alternations of heat and cold are dangerous (especially to the young and the aged). Therefore, clothing, in quantity and quality, should be adapted to the alternations of night and day, and of the seasons. And therefore, also, drinking cold water when the body is hot, and hot tea and soups when cold are productive of many evils.

Never visit a sick person (especially if the complaint be of a contagious nature) with an empty stomach, as this disposes the system more readily to receive the contagion. And in attending a sick person, place yourself where the air passes from the door or window to the bed of the diseased; not between the diseased person and any fire that is in the room, as the heat of the fire will draw the infectious vapor in that direction.

MOTHER SHIPTON'S PROPHECY.—The lines known as "Mother Shipton's Prophecy" were first published in England in 1485, before the discovery of America, and, of course, before any of the discoveries and inventions mentioned therein. All the events predicted have come to pass except that in the last two lines.

Carriages without horses shall go,
And accidents fill the world with woe
Around the world thoughts shall fly
In the twinkling of an eye.
Waters shall yet more wonders do,
Now strange, yet shall be true.
The world upside down shall be,
And gold be found at root of tree.
Through hills man shall ride,
And no horse nor ass be at his side.
Under water man shall walk,
Shall ride, shall sleep, shall talk.
In the air men shall be seen
In white, in black, in green.
Iron in the water shall float,
As easy as a wooden boat.
Gold shall be found 'mid stone,
In a land that's now unknown.
Fire and water shall wonders do,
England shall at last admit a Jew.
And this world to an end shall come
In eighteen hundred and eighty-one.

CAPTAIN KIDD, a notorious American pirate, was born about 1650. In 1696 he was entrusted by the British Government with the command of a privateer, and sailed from New York, for the purpose of suppressing the numerous pirates then infesting the seas. He went to the East Indies, where he began a career of piracy, and returned to New York in 1698 with a large amount of booty. He was soon after arrested, sent to England for trial, and executed in 1701.

VALUE OF OLD AMERICAN COINS.—1793—Half cent, 75 cents; one cent, $2. 1794—Half cent, 20 cents, one cent, 10 cents; five cents, $1.25; fifty cents, $3; one dollar, $10. 1795—Half cent, 5 cents; one cent, 5 cents; five cents, 25 cents; fifty cents, 55 cents; one dollar, $1.25. 1796—Half cent, $5; one cent, 10 cents; five cents $1; ten cents, 50 cents; twenty-five cents, $1; fifty cents, $10; one dollar, $1.50. 1797—Half cent, 5 cents; one cent, 5 cents; five cents, 50 cents; ten cents, $1; fifty cents, $10; one dollar, $1.50. 1798—One cent, 5 cents; ten cents, $1; one dollar, $1.50. 1799—One cent, $5; one dollar, $1.60. 1800—Half cent, 5 cents; one cent, 3 cents; five cents, 25 cents; ten cents 1; one dollar, $1.10. 1801—One cent, 3 cents; five cents, $1; ten cents, $1; fifty cents, $2; one dollar, $1.25. 1802—Half cent, 50 cents; one cent, 2 cents; ten cents, $1; fifty cents, $2; one dollar, $1.25. 1803—Half cent, 2 cents; one cent, 2 cents; five cents, $10; ten cents, 1; one dollar, $1.10. 1804—Half cent, 2 cents; one cent, $2; five cents, 75 cents; ten cents, $2; twenty-five cents, 75 cents; one dollar, $100. 1805—Half cent, 2 cents; one cent, 3 cents; five cents, $1.50; ten cents, 25 cents. 1806—Half cent, 2 cents; one cent, 3 cents. 1807—Half cent, 2 cents; one cent, 3 cents; ten cents, 25 cents. 1808—Half cent, 2 cents; one cent, 5 cents. 1809—Half cent, 1 cent; one cent, 25 cents; ten cents, 50 cents. 1810—Half cent, 5 cents; one cent, 5 cents. 1811—Half cent, 25 cents; one cent, 10 cents; ten cents, 50 cents. 1812—One cent, 2 cents. 1813—One cent, 5 cents. 1815—Fifty cents, $5. 1821—One cent, 5 cents. 1822—Ten cents, $1. 1823—One cent, 5 cents; twenty-five cents, $10. 1824—Twenty-five cents, 40 cents. 1825—Half cent, 2 cents. 1826—Half cent, 2 cents; one cent, 50 cents. 1827—One cent, 3 cents; twenty-five cents, $10. 1828—Half cent, 1 cent; twenty-five cents, 30 cents. 1829—Half cent, 2 cents. 1830—Half cent, 2 cents. 1832-'33-'34—Half cent, 2 cents. 1835—Half cent, 1 cent. 1836—Fifty cents, $3; one dollar, $3. 1838—Ten cents, 25 cents. 1839—One dollar, $10. 1846—Five cents, 50 cents. 1849-'50—Half cent, 5 cents. 1851—Half cent, 1 cent; twenty-five cents, 30 cents; one dollar, $10.90. 1852—Twenty-five cents, 30 cents; fifty cents, $2; one dollar, $10. 1853—Half cent, 1 cent; twenty cents (with no arrows), $2.50; one dollar, $1.25. 1854—Half cent, 2 cents; one dollar, $2. 1855-'57—Half cent, 5 cents; one dollar, $1.50. 1856—Half cent, 5 cents; one dollar, $1.50. 1858—One dollar, $10. 1863-'4-'5—Three cents, 25 cents. 1866—Half cent, 6 cents; three cents, 25 cents; five cents, 10 cents; twenty-five cents, 30 cents. 1867—Three cents, 25 cents; five cents, 10 cents. 1868-'9—Three cents, 25 cents. 1870—Three cents, 15 cents. 1871—Two cents, 10 cents; three cents, 25 cents. 1873—Two cents, 50 cents; three cents, 50 cents. 1877-'8—Twenty cents, $1.50. These prices are for good ordinary coins without holes. Fine specimens are worth more.

LEANING TOWER OF PISA.—The leaning tower of Pisa was commenced in 1152, and was not finished till the fourteenth century. The cathedral to which this belongs was erected to celebrate a triumph of the Pisans in the harbor of Palermo in 1063, when allied with the Normans to drive the Saracens out of Sicily. It is a circular building, one hundred feet in diameter and 179 feet in extreme height, and has fine mosaic pavements, elaborately carved columns, and numerous bas-reliefs. The building is of white marble. The tower is divided into eight stories, each having an outside gallery of seven feet projection, and the topmost story overhangs the base about sixteen feet, though, as the center of gravity is still ten feet within the base, the building is perfectly safe. It has been supposed that this inclination was intentional, but the opinion that the foundation has sunk is no doubt correct. It is most likely that the defective foundation became perceptible before the tower had reached one-half its height, as at that elevation the unequal length of the columns exhibits an endeavor to restore the perpendicular, and at about the same place the walls are strengthened with iron bars.

What causes the water to flow out of an artesian well?—The theoretical explanation of the phenomenon is easily understood. The secondary and tertiary geological formations often present the appearance of immense basins, the boundary or rim of the basin having been formed by an upheaval of adjacent strata. In these formations it often happens that a porous stratum, consisting of sand, sandstone, chalk or other calcareous matter, is included between two impermeable layers of clay, so as to form a flat porus U tube, continuous from side to side of the valley, the outcrop on the surrounding hills forming the mouth of the tube. The rain filtering down through the porous layer to the bottom of the basin forms there a subterranean pool, which, with the liquid or semi-liquid column pressing upon it, constitutes a sort of huge natural hydrostatic bellows. Sometimes the pressure on the superincumbent crust is so great as to cause an upheaval or disturbance of the valley. It is obvious, then, that when a hole is bored down through the upper impermeable layer to the surface of the lake, the water will be forced up by the natural law of water seeking its level to a height above the surface of the valley, greater or less, according to the elevation of the level in the feeding column, thus forming a natural mountain on precisely the same principle as that of most artificial fountains, where the water supply comes from a considerable height above the jet.

HOW MANY CUBIC FEET THERE ARE IN A TON OF COAL.—There is a difference between a ton of hard coal and one of soft coal. For that matter, coal from different mines, whether hard or soft, differs in weight, and consequently in cubic measure, according to quality. Then there is a difference according to size. To illustrate, careful measurements have been made of Wilkesbarre anthracite, a fine quality of hard coal, with the following results:

Size of coal.	Cubic feet in ton of 2,240 lbs.	Cubic feet in ton of 2,000 lbs.
Lump	33.2	28.8
Broken	33.9	30.3
Egg	34.5	30.8
Stone	34.8	31.1
Chestnut	35.7	31.9
Pea	36.7	32.8

For soft coal the following measures may be taken as nearly correct; it is simply impossible to determine any exact rule, even for bituminous coal of the same district: Briar Hill coal, 44.8 cubic feet per ton of 2,240 pounds; Pittsburgh, 47.8; Wilmington, Ill., 47; Indiana block coal, 42 to 43 cubic feet.

The dimensions of the great wall of China and of what it is built.—It runs from a point on the Gulf of Liantung, an arm of the Gulf of Pechili in Northeastern China, westerly to the Yellow River; thence makes a great bend to the south for nearly 100 miles, and then runs to the northwest for several hundred miles to the Desert of Gobi. Its length is variously estimated to be from 1,250 to 1,500 miles. For the most of this distance it runs through a mountainous country, keeping on the ridges, and winding over many of the highest peaks. In some places it is only a formidable rampart, but most of the way it is composed of lofty walls of masonry and concrete, or impacted lime and clay, from 12 to 16 feet in thickness, and from 15 to 30 or 35 feet in height. The top of this wall is paved for hundreds of miles, and crowned with crenallated battlements, and towers 30 to 40 feet high. In numerous places the wall climbs such steep declivities that its top ascends from height to height in flights of granite steps. An army could march on the top of the wall for weeks and even months, moving in some places ten men abreast.

Limits of Natural Vision.—This question is too indefinite for a specific answer. The limits of vision vary with elevation, conditions of the atmosphere, intensity of illumination, and other modifying elements in different cases. In a clear day an object one foot above a level plain may be seen at the distance of 1.31 miles; one ten feet high, 4.15 miles; one twenty feet high, 5.86 miles; one 100 feet high, 13.1 miles; one a mile high, as the top of a mountain, 95.23 miles. This allows seven inches (or, to be exact, 6.99 inches) for the curvature of the earth, and assumes that the size and illumination of the object are sufficient to produce an image. Five miles may be taken as the extreme limit at which a man is visible on a flat plain to an observer on the same level.

THE NIAGARA SUSPENSION BRIDGE.—For seven miles below the falls, Niagara river flows through a gorge varying in width from 200 to 400 yards. Two miles below the falls the river is but 350 feet wide, and it is here that the great suspension bridge, constructed in 1855 by Mr. Roebling, crosses the gorge, 245 feet above the water. The length of the span, from tower to tower, is 821 feet, and the total length of the bridge is 2,220 feet. The length of the span, which is capable of sustaining a strain of 10,000 tons, is 821 feet from tower to tower, and the total length of the bridge is 2,220 feet. It is used both for railway and wagon traffic, the wagon-road and foot-way being directly under the railway bed. There is another suspension bridge across the Niagara river at a distance of only about fifty rods from the falls, on the American side. This is only for carriages and foot travel. It was finished in 1869. It is 1,190 feet long from cliff to cliff, 1,268 feet from tower to tower, and 190 feet above the river, which at this point is a little over 900 feet in width.

THE SPEED OF SOUND.—It has been ascertained that a full human voice, speaking in the open air, calm, can be heard at a distance of 460 feet; in an observable breeze a, powerful human voice with the wind is audible at a distance of 15,840 feet; the report of a musket, 16,000 feet; a drum, 10,560 feet; music, a strong brass band, 15,840 feet; very heavy cannonading, 575,000 feet, or 90 miles. In the Arctic regions conversation has been maintained over water a distance of 6,766 feet. In gases the velocity of sound increases with the temperature; in air this increase is about two feet per second for each degree centigrade. The velocity of sound in oxygen gas at zero C. is 1,040 feet; in carbonic acid, 858 feet; in hydrogen, 4,164 feet. In 1827 Colladon and Sturm determined experimentally the velocity of sound in fresh water; the experiment was made in the Lake of Geneva, and it was found to be 4,174 feet per second at a temperature of 15 degrees C.

The velocity of sound in alcohol at 20 degrees C. is 4,218 feet; in ether at zero, 3,801; in sea water at 20 degrees C., 4,768. By direct measurements, carefully made, by observing at night the interval which elapses between the flash and report of a cannon at a known distance, the velocity of sound has been about 1,090 per second at the temperature of freezing water.

DESCRIPTION OF THE YELLOWSTONE PARK.—The Yellowstone National Park extends sixty-five miles north and south, and fifty-five miles east and west, comprising 3,575 square miles, and is all 6,000 feet or more above sea-level. Yellowstone Lake, twenty miles by fifteen, has an altitude of 7,788 feet. The mountain ranges which hem in the valleys on every side rise to the height of 10,000 to 12,000 feet, and are always covered with snow. This great park contains the most striking of all the mountains, gorges, falls, rivers and lakes in the whole Yellowstone region. The springs on Gardiner's River cover an area of about one square mile, and three or four square miles thereabout are occupied by the remains of springs which have ceased to flow. The natural basins into which these springs flow are from four to six feet in diameter and from one to four feet in depth. The principal ones are located upon terraces midway up the sides of the mountain. The banks of the Yellowstone River abound with ravines and canons, which are carved out of the heart of the mountains through the hardest of rocks. The most remarkable of these is the canon of Tower Creek and Column Mountain. The latter, which extends along the eastern bank of the river for upward of two miles, is said to resemble the Giant's Causeway. The canon of Tower Creek is about ten miles in length and is so deep and gloomy that it is called "The Devil's Den." Where Tower Creek ends the Grand Canon begins. It is twenty miles in length, impassable throughout, and inaccessible at the water's edge, except at a few points. Its rugged edges are from 200 to 500 yards apart, and its depth is so profound that no sound ever reaches the ear from the bottom. The Grand Canon contains a great multitude of hot springs of sulphur, sulphate of copper, alum, etc. In the number and magnitude of its hot springs and geysers, the Yelowstone Park surpasses all the rest of the world. There are probably fifty geysers that throw a column of water to the height of from 50 to 200 feet, and it is stated that there are not fewer than 5,000 springs; there are two kinds, those depositing lime and those depositing silica. The temperature of the calcareous springs is from 160 to 170 degrees, while that of the others rises to 200 or more. The principal collections are the upper and lower geyser basins of the Madison River, and the calcareous springs on Gardiner's River. The great falls are marvels to which adventurous travelers have gone only to return and report that they are parts of the wonders of this new American wonderland.

DESIGNATIONS OF GROUPS OF ANIMALS.—The ingenuity of the sportsman is, perhaps, no better illustrated than by the use he puts the English language to in designating particular groups of animals. The following is a list of the terms which have been applied to the various classes:

A covey of patridges, A nide of pheasants, A wisp of snipe, A flight of doves or swallows, A muster of peacocks, A siege of herons, A building of rooks, A brood of grouse, A plump of wild fowl, A stand of plovers, A watch of nightingales, A clattering of choughs, A flock of geese, A herd or bunch of cattle, A bevy of quails, A cast of hawks, A trip of dottrell, A swarm of bees, A school of whales, A shoal of herrings, A herd of swine, A skulk of foxes, A pack of wolves, A drove of oxen, A sounder of hogs, A troop of monkeys, A pride of lions, A sleuth of bears, A gang of elk.

THE BUNKER HILL MONUMENT.—The monument is a square shaft, built of Quincy granite, 221 feet high, 31 feet square at the base and 15 at the top. Its foundations are inclosed 12 feet under ground. Inside the shaft is a round, hollow cone, 7 feet wide at the bottom and 4 feet 2 inches at the top, encircled by a winding staircase of 224 stone steps, which leads to a chamber immediately under the apex, 11 feet in diameter. The chamber has four windows, which afford a wide view of the surrounding country, and contains two cannons, named respectively Hancock and Adams, which were used in many engagements during the war. The corner-stone of the monument was laid on the fiftieth anniversary of the battle, June 17, 1825, by Lafayette, who was then visiting America, when Webster pronounced the oration. The monument was completed, and June 17, 1843, was dedicated, Webster again delivering the oration.

THE SEVEN WISE MEN OF GREECE.—The names generally given are Solon, Chilo, Pittacus, Bias, Periander (in place of whom some give Epimenides), Cleobulus, and Thales. They were the authors of the celebrated mottoes inscribed in later days in the Delphian Temple. These mottoes were as follows:

"Know thyself."—Solon.
"Consider the end."—Chilo.
"Know thy opportunity."—Pittacus.
"Most men are bad."—Bias.
"Nothing is impossible to industry."—Periander.
"Avoid excesses."—Cleobulus.
"Suretyship is the precursor of ruin."—Thales.

FIRST STEAMBOAT ON THE MISSISSIPPI.—Nicholas J. Roosevelt was the first to take a steamboat down the great river. His boat was built at Pittsburgh, in the year 1811, under an arrangement with Fulton and Livingston, from Fulton's plans. It was called the "New Orleans," was about 200 tons burden, and was propelled by a stern-wheel, assisted, when the wind was favorable, by sails carried on two masts. The hull was 138 feet long, 30 feet beam, and the cost of the whole, including engines, was about $40,000. The builder, with his family, an engineer, a pilot, and six "deck hands," left Pittsburgh in October, 1811, reaching Louisville in about seventy hours (steaming about ten miles an hour), and New Orleans in fourteen days, steaming from Natchez.

THE EXPLORATIONS OF FREMONT.—Among the earliest efforts of Fremont, after he had tried and been sickened by the sea, were his experiences as a surveyor and engineer on railroad lines from Charleston to Augusta, Ga., and Charleston to Cincinnati. Then he accompanied an army detachment on a military reconnoissance of the mountainous Cherokee country in Georgia, North Carolina and Tennessee, made in the depth of winter. In 1838-9 he accompanied M. Nicollet in explorations of the country between the Missouri and the British line, and his first detail of any importance, after he had been commissioned by President Van Buren, was to make an examination of the river Des Moines, then on the Western frontier. In 1841 he projected his first trans-continental expedition, and left Washington May 2, 1842, and accomplished the object of his trip, examined the South Pass, explored the Wind River mountains, ascended in August, the highest peak of that range, now known as Fremont's Peak, and returned, after an absence of four months. His report of the expedition attracted great attention in the United States and abroad. Fremont began to plan another and a second expedition. He determined to extend his explorations across the continent; and in May, 1843, commenced his journey with thirty-nine men, and September 6, after traveling over 1,700 miles, arrived at the Great Salt Lake; there made some important discoveries, and then pushed

on to the upper Columbia, down whose valley he proceeded to Fort Vancouver, near its mouth. On Nov. 10, he set out to return East, selecting a southeasterly course, leading from the lower part of the Columbia to the upper Colorado, through an almost unknown region, crossed by high and rugged mountains. He and his party suffered incredible hardships in crossing from the Great Basin to Sutter's Fort on the Sacramento; started from there March 24, proceeded southward, skirted the western base of the Sierra Nevada, crossed that range through a gap, entered the Great Basin; again visited the Great Salt Lake, from which they returned through the South Pass to Kansas, in July, 1844, after an absence of fourteen months. In the spring of 1845 Fremont set out on a third expedition to explore the Great Basin and the maritime region of Oregon and California; spent the summer examining the headwaters of the rivers whose springs are in the grand divide of the continent; in October camped on the shores of the Great Salt Lake: proceeded to explore the Sierra Nevada, which he again crossed in the dead of winter; made his way into the Valley of the San Joaquin; obtained permission, at Monterey, from the Mexican authorities there, to proceed with his expedition, which permission was almost immediately revoked, and Fremont peremptorily ordeder to leave the country without delay, but he refused, and a collision was imminent, but was averted, and Fremont proceeded toward San Joaquin. Near Tlamath Lake, Fremont met, May 9, 1846, a party in search of him, with dispatches from Washington, ordering him to watch over the interests of the United States in California, as there was reason to believe that province would be transferred to Great Britain. He at once returned to California; General Castro was already marching against our settlements; the settlers rose in arms, flocked to Fremont's camp, and, with him as leader, in less than a month, all Northern California was freed from Mexican authority; and on July 4 Fremont was elected Governor of California by the American settlers. Later came the conflict between Commodore Stockton and General Kearney; and Fremont resigned his commission as Lieutenant-Colonel, to which he had been promoted. In October, 1848, he started across the continent on a fourth expedition, outfitted at his own expense, to find a practicable route to California. In attempting to cross the great Sierra, covered with snow, his guide lost his way, and the party encountered horrible suffering from cold and hunger, a portion of them being driven to cannibalism; he lost all his animals (he had 120 mules when he started), and one-third of his men (he had thirty-three) perished, and he had to retrace his steps to Santa Fe. He again set out, with thirty men, and, after a long search, discovered a secure route, which led to the Sacramento, where he arrived in the spring of 1849. He led a fifth expedition across the continent in 1853, at his own expense, and found passes through the mountains in the line of latitude 38 deg., 39 min., and reached California after enduring great hardships; for fifty days his party lived on horse-flesh, and for forty-eight hours at a time without food of any kind. These are the barest outlines of five expeditions of which many volumes have been written, but will hint at Fremont's work in the West which entitled him to the name of the "Pathfinder."

Chinese Proverbs.—The Chinese are indeed remarkably fond of proverbs. They not only employ them in conversation—and even to a greater degree than the Spaniards, who are noted among Europeans for the number and excellence of their proverbial sayings—but they have a practice of adorning their reception rooms with these sententious bits of wisdom, inscribed on decorated scrolls or embroidered on rich crapes and brocades. They carve them on door-posts and pillars, and emblazon them on the walls and ceilings in gilt letters. The following are a few specimens of this sort of literature: As a sneer at the use of unnecessary force to crush a contemptible enemy, they say: "He rides a fierce dog to catch a lame rabbit." Similar to this is another, "To use a battle-ax to cut off a hen's head." They say of wicked associates: "To cherish a bad man is like nourishing a tiger; if not well-fed he will devour you." Here are several others mingling wit with wisdom: "To instigate a villain to do wrong is like teaching a monkey to climb trees;" "To catch fish and throw away the net," which recalls our saying, "Using the cat's paw to pull the chestnuts out of the fire;" "To climb a tree to catch a fish" is to talk much to no purpose; "A superficial scholar is a sheep dressed in a tiger's skin;" "A cuckoo in a magpie's nest," equivalent to saying, "he is enjoying another's labor without compensation·" "If the blind lead the blind they will both fall into the pit;" "A fair wind raises no storm;" "Vast chasms can be filled, but the heart of man is never satisfied;" "The body may be healed, but the mind is incurable;" "He seeks the ass, and lo! he sits upon him;" "He who looks at the sun is dazzled; he who hears the thunder is deafened," i. e., do not come too near the powerful; "Prevention is better than cure;" "Wine and good dinners make abundance of friends, but in adversity not one of them is to be found." "Let every man sweep the snow from before his own door, and not trouble himself about the frost on his neighbor's tiles." The following one is a gem of moral wisdom: "Only correct yourself on the same principle that you correct others, and excuse others on the same principles on which you excuse yourself." "Better not be, than be nothing." "One thread does not make a rope; one swallow does not make a summer." "Sensuality is the chief of sins, filial duty the best of acts." "The horse's back is not so safe as the buffalo's"—the former is used by the politician, the latter by the farmer. "Too much lenity multiplies crime." "If you love your son give him plenty of the rod; if you hate him cram him with dainties." "He is my teacher who tells me my faults, he my enemy who speaks my virtues." Having a wholesome dread of litigation, they say of one who goes to law, "He sues a flea to catch a bite." Their equivalent for our "coming out at the little end of the horn" is, "The farther the rat creeps up (or into) the cow's horn, the narrower it grows." The truth of their saying that "The fame of good deeds does not leave a man's door, but his evil acts are known a thousand miles off," is illustrated in our own daily papers every morning. Finally, we close this list with a Chinese proverb which should be inscribed on the lintel of every door in Christendom: "The happy-hearted man carries joy for all the household."

Mason and Dixon's Line.—Mason and Dixon's line is the concurrent State line of Maryland and Pennsylvania. It is named after two eminent astronomers and mathemeticians, Charles Mason and Jeremiah Dixon, who were sent out from England to run it. They completed the survey between 1763 and 1767, excepting thirty-six miles surveyed in 1782 by Colonel Alex. McLean and Joseph Neville. It is in the latitude of 39 deg. 43 min. 26.3 sec.

Great Fires of History.—The loss of life and property in the willful destruction by fire and sword of the principal cities of ancient history—Nineveh, Babylon, Persepolis, Carthage, Palmyra, and many others—is largely a matter of conjecture. The following is a memorandum of the chief conflagrations of the current era:

In 64, A. D., during the reign of Nero, a terrible fire raged in Rome for eight days, destroying ten of the fourteen wards. The loss of life and destruction of property is not known.

In 70, A. D., Jerusalem was taken by the Romans and a large part of it given to the torch, entailing an enormous destruction of life and property.

In 1106 Venice, then a city of immense opulence, was almost wholly consumed by a fire, originating in accident or incendiarism.

In 1212 the greater part of London was burned.

In 1666 what is known as the Great Fire of London raged in the city from September 2 to 6, consuming 13,200 houses, with St. Paul's Church, 86 parish churches, 6 chapels, the Guild Hall, the Royal Exchange, the Custom House, 52 companies halls, many hospitals, libraries and other public edifices. The total destruction of property was estimated at $53,652,500. Six lives were lost, and 436 acres burnt over.

In 1679 a fire in Boston burned all the warehouses, eighty dwellings, and vessels in the dock-yards; loss estimated at $1,000,000.

In 1700 a large part of Edinburgh was burned; loss unknown.

In 1728 Copenhagen was nearly destroyed; 1,650 houses burned.

In 1736 a fire in St. Petersburg burned 2,000 houses.

In 1729 a fire in Constantinople destroyed 12,000 houses, and 7,000 people perished. The same city suffered a conflagration in 1745, lasting five days; and in 1750 a series of three appalling fires: one in January, consuming 10,000 houses; another in April destroying property to the value of $5,000,000, according to one historian, and according to another, $15,000,000; and in the latter part of the year another, sweeping fully 10,000 houses more out of existence. It seemed as if Constantinople was doomed to utter annihilation.

In 1751 a fire in Stockholm destroyed 1,000 houses and another fire in the same city in 1759 burned 250 houses with a loss of $2,420,000.

In 1752 a fire in Moscow swept away 18,000 houses, involving an immense loss.

In 1758 Christiania suffered a loss of $1,250,000 by conflagration.

In 1760 the Portsmouth (England) dock yards were burned, with a loss of $2,000,000.

In 1764 a fire in Konigsburg, Prussia, consumed the public buildings, with a loss of $3,000,000; and in 1769 the city was almost totally destroyed.

In 1763 a fire in Smyrna destroyed 2,600 houses, with a loss of $1,000,000; in 1772 a fire in the same city carried off 3,000 dwellings and 3,000 to 4,000 shops, entailing a loss of $20,000,000; and in 1796 there were 4,000 shops, mosques, magazines, etc., burned.

In 1776, six days after the British seized the city, a fire swept off all the west side of New York city, from Broadway to the river.

In 1771 a fire in Constantinople burned 2,500 houses; another in 1778 burned 2,000 houses; in 1782 there were 600 houses burned in February, 7,000 in June, and on August 12 during a conflagration that lasted three days, 10,000 houses, 50 mosques, and 100 corn-mills, with a loss of 100 lives. Two years later a fire, on March 13, destroyed two-thirds of Pera, the loveliest suburb of Constantinople, and on August 5 a fire in the main city, lasting twenty-six hours, burned 10,000 houses. In this same fire-scourged city, in 1791, between March and July, there were 32,000 houses burned, and about as many more in 1795; and in 1799 Pera was again swept with fire, with a loss of 13,000 houses, including many buildings of great magnificence.

In 1784 a fire and explosion in the dock yards, Brest, caused a loss of $5,000,000.

But the greatest destruction of life and property by conflagration, of which the world has anything like accurate records, must be looked for within the current century. Of these the following is a partial list of instances in which the loss of property amounted to $3,000,000 and upward:

Dates. Cities.	Property destroyed.
1802—Liverpool	$5,000,000
1803—Bombay	3,000,600
1805—St. Thomas	30,000,000
1808—Spanish Town	7,500,000
1812—Moscow, burned five days; 30,800 houses destroyed	150,000,000
1816—Constantinople, 12,000 dwellings, 3,000 shops	.....
1820—Savannah	4,000,000
1822—Canton nearly destroyed	.....
1828—Havana, 350 houses	.....
1835—New York ("Great Fire")	15,000,000
1837—St. Johns, N. B.	5,000,000
1838—Charleston, 1,158 buildings	3,000,000
1841—Smyrna, 12,000 houses	.....
1842—Hamburg, 4,219 buildings, 100 lives lost	35,000,000
1845—New York, 35 persons killed	7,500,000
1845—Pittsburgh, 1,100 buildings	10,000,000
1845—Quebec, May 28, 1,650 dwellings	3,750,000
1845—Quebec, June 28, 1,300 dwellings	.....
1846—St. Johns, Newfoundland	5,000,000
1848—Constantinople, 2,500 buildings	15,000,000
1848—Albany, N. Y., 600 houses	3,000,000
1849—St. Louis	3,000,000
1851—St. Louis, 2,500 buildings	11,000,000
1851—St. Louis, 500 buildings	3,000,000
1851—San Francisco, May 4 and 5, many lives lost	10,000,000
1851—San Francisco, June	3,000,000
1852—Montreal, 1,200 buildings	5,000,000
1861—Mendoza destroyed by eartquake and fire, 10,000 lives lost	.....
1862—St. Petersburg	5,000,000
1862—Troy, N. Y., nearly destroyed	.....
1862—Valparaiso almost destroyed	.....
1864—Novgorod, immense destruction of property	.....
1865—Constantinople, 2,800 buildings burned	.....
1866—Yokohama, nearly destroyed	.....
1865—Carlstadt, Sweden, all consumed but Bishop's residence, hospital and jail; 10 lives lost	.....
1866—Portland, Me., half the city.	11,000,000
1866—Quebec, 2,500 dwellings, 17 churches	.....
1870—Constantinople, Pera, suburb	26,000,000
1871—Chicago—250 lives lost, 17,430 buildings burned, on 2,124 acres	192,000,000
1871—Paris, fired by the Commune	160,000,000
1872—Boston	75,000,000
1873—Yeddo, 10,000 houses	.....
1877—Pittsburgh, caused by riot	3,260,000
1877—St. Johns, N. B., 1,650 dwellings, 18 lives lost	12,500,000

From the above it appears that the five greatest fires on record, reckoned by destruction of property, are:

Chicago fire, of Oct. 8 and 9, 1871	$192,000,000
Paris fires, of May, 1871	160,000,000
Moscow fire, of Sept. 14-19, 1812	150,000,000
Boston fire, Nov. 9-10, 1872	75,000,000
London fire, Sept. 2-6, 1666	53,652,500
Hamburg fire, May 5-7, 1842	35,000,000

Taking into account, with the fires of Paris and Chicago, the great Wisconsin and Michigan forest fires of 1871, in which it is estimated that 1,000 human beings perished and property to the amount of over $3,000,000 was consumed, it is plain that in the annals of conflagrations that year stands forth in gloomy pre-eminence.

WEALTH OF THE UNITED STATES PER CAPITA.—The following statistics represent the amount of taxable property, real and personal, in each State and Territory, and also the amount per capita:

	Total.	Per capita.
Maine	$235,978,716	362.09
New Hampshire	164,755,181	474.81
Vermont	86,806,755	261,24
Massachusetts	1,584,756,802	888.77
Rhode Island	252,536,673	913.23
Connecticut	327,177,385	525.41
New Jersey	572,518,361	506.06
New York	2,651,940,000	521.74
Pennsylvania	1,683,459,016	393.08
Delaware	59,951,643	408.92
Maryland	497,307,675	533.07
District of Columbia	99,401,787	845.08
Virginia	308,455,135	203.92
West Virginia	139,622,705	225.75
North Carolina	156,100,202	111.52
South Carolina	153,560,135	154.24
Georgia	239,472,599	155.82
Florida	30,938,309	114.80
Alabama	122,867,228	97.32
Mississippi	110,628,129	97.76
Louisiana	160,162,439	170.39
Texas	320,364,515	201.26
Arkansas	86,409,364	176.71
Kentucky	350,563,971	212.63
Tennessee	211,778,538	137.30
Ohio	1,534,360,508	479.77
Indiana	727,815,131	367.89
Illinois	786,616,394	255.24
Michigan	517,666,359	316.23
Wisconsin	438,971,751	333.69
Iowa	398,671,251	245.39
Minnesota	258,028,687	330.48
Missouri	432,795,801	245.72
Kansas	160,891,689	161.52
Nebraska	90,585,782	200.23
Colorado	74,471,693	383.22
Nevada	29,291,459	470.40
Oregon	52,522,084	300.52
California	584,578,036	676.05
Arizona	9,270,214	229.23
Dakota	20,321,530	150.33
Idaho	6,440,876	197.51
Montana	18,609,802	475.23
New Mexico	11,362,406	95.04
Utah	24,775,279	172.09
Washington	23,810,603	316.98
Wyoming	13,621,829	655,24
Total	$16,902,993,543	337.00

TABLE FOR MEASURING AN ACRE.—To measure an acre in rectangular form is a simple question in arithmetic. One has only to divide the total number of square yards in an acre, 4,840, by the number of yards in the known side or breadth to find the unkown side in yards. By this process it appears that a rectangular strip of ground—

5 yards wide by 968 yards long is 1 acre.
10 yards wide by 484 yards long is 1 acre.
20 yards wide by 242 yards long is 1 acre.
40 yards wide by 121 yards long is 1 acre.
80 yards wide by 60½ yards long is 1 acre.
70 yards wide by 69½ yards long is 1 acre.
60 yards wide by 80⅝ yards long is 1 acre.

THE LANGUAGE OF GEMS.—The language of the various precious stones is as follows:

Moss Agate—Health, prosperity and long life.
Amethyst—Prevents violent passions.
Bloodstone—Courage, wisdom and firmness in affection.
Chrysolite—Frees from evil passions and sadness.
Emerald—Insures true love, discovers false.
Diamonds—Innocence, faith and virgin purity, friends.
Garnet—Constancy and fidelity in every engagement.
Opal—Sharpens the sight and faith of the possessor.
Pearl—Purity; gives clearness to physical and mental sight.
Ruby—Corrects evils resulting from mistaken friendship.
Sapphire—Repentance; frees from enchantment.
Sardonyx—Insures conjugal felicity.
Topaz—Fidelity and friendship; prevents bad dreams.
Turquoise—Insures prosperity in love.

GREAT SALT LAKE AND THE DEAD SEA.—Great Salt Lake is a shallow body of water, its average depth being but a little more than three feet, while in many parts it is much less. The water is transparent, but excessively salt; it contains about 22 per cent of common salt, slightly mixed with other salts, and forming one of the purest and most concentrated brines in the world. Its specific gravity is 1.17. The water is so buoyant that a man may float in it at full length upon his back, having his head and neck, his legs to the knee, and both arms to the elbow, entirely out of water. If he assumes a sitting posture, with his arms extended, his shoulders will rise above the water. Swimming, however, is difficult as the lower limbs tend to rise above the surface, and the brine is so strong that to swallow even a very little of it will cause strangulation. The waters of the Dead Sea, on the other hand, are nearly black, and contain much sulphur and bitumen, as well as salt. It is also very deep, varying from thirteen feet near the south end of the lake to more than 1,300 feet in the northern part. Its buoyancy is quite equal to that of Great Salt Lake, for travelers say that a man can float prone upon the surface for hours without danger of sinking, and in a sitting position is held breast-high above the water.

SOME FAMOUS WAR SONGS.—The slavery war developed several Union song-writers whose stirring verses have kept on singing themselves since the close of that great struggle. Two among them are best remembered nowadays, both men who wrote the words and composed the music to their own verses. Chicago lays claim to one, Dr. George F. Root, and Boston to the other, Henry C. Work. The song "Marching Through Georgia," as every one knows, was written in memory of Sherman's famous march from Atlanta to the sea, and words and music were the composition of Henry C. Work, who died not many months ago (in 1884). The first stanza is as follows:

Bring the good old bugle, boys, we'll sing another song—
Sing it with spirit that will start the world along—
Sing it as we used to sing it, fifty thousand strong,
While we were marching through Georgia.

Chorus—
"Hurrah! hurrah! we bring the jubilee!
Hurrah! hurrah! the flag that makes you free!"
So we sang the chorus from Atlanta to the sea,
While we were marching through Georgia.

Among the other songs of Work the following are best known: "Kingdom Coming," or "Say, Darkey, Hab You Seen de Massa?" "Babylon is Fallen," "Grafted into

the Army" and "Corporal Schnapps." This record would be incomplete were we to fail to mention some of the many ringing songs of George F. Root, songs which have made the name of Root famous in thousands upon thousands of households in the West. Some of these songs are: "Battle Cry of Freedom," "Tramp, Tramp, Tramp," "On, on, on, the Boys Came Marching," "Just Before the Battle, Mother," "Just After the Battle," "Lay Me Down and Save the Flag," "Stand Up for Uncle Sam, My Boys." The well known song, "Wrap the Flag Around Me, Boys," was composed by R. Stewart Taylor, and "When Johnny Comes Marching Home" by Louis Lambert.

THE COST OF ROYALTY IN ENGLAND.—Her Majesty:

Privy purse	£60,000
Salaries of household	131,260
Expenses of household	172,500
Royal bounty, etc.	13,200
Unappropriated	8,040
	£385,000
Prince of Wales	40,000
Princess of Wales	10,000
Crown Princess of Prussia	8,000
Duke of Edinburgh	25,000
Princess Christian of Schleswig-Holstein	6,000
Princess Louise (Marchioness of Lorne)	6,000
Duke of Connaught	25,000
Duke of Albany	25,000
Duchess of Cambridge	6,000
Duchess of Mecklenburg-Strelitz	3,000
Duke of Cambridge	12,000
Duchess of Teck	5,000

SOME GREAT RIVERS.—From Haswell's little work for engineers and mechanics the following figures are taken, showing the lengths of the largest rivers on the various continents:

EUROPE.

Name.	Miles.
Volga, Russia	2,500
Danube	1,800
Rhine	840
Vistula	700

ASIA.

Yeneisy and Selenga	3,580
Kiang	3,290
Hoang Ho	3,040
Amoor	2,500
Euphrates	1,900
Ganges	1,850
Tigris	1,160

AFRICA.

Nile	3,240
Niger	2,400
Gambia	1,000

SOUTH AMERICA.

Name.	Miles.
Amazon and Beni	4,000
Platte	2,700
Rio Madeira	2,300
Rio Negro	1,650
Orinoco	1,600
Uruguay	1,100
Magdalena	900

NORTH AMERICA.

Mississippi and Missouri	4,300
Mackenzie	2,800
Rio Bravo	2,300
Arkansas	2,070
Red River	1,520
Ohio and Alleghany	1,480
St. Lawrence	1,450

The figures as to the length of the Nile are estimated. The Amazon, with its tributaries (including the Rio Negro and Madeira), drains an area of 2,330,000 square miles; the Mississippi and Missouri, 1,726,000 square miles; the Yeneisy (or Yenisei, as it is often written) drains about 1,000,000 square miles; the Volga, about 500,000. In this group of great rivers the St. Lawrence is the most remarkable. It constitutes by far the largest body of fresh water in the world. Including the lakes and streams, which it comprises in its widest acceptation, the St. Lawrence covers about 73,000 square miles; the aggregate, it is estimated, represents not less than 9,000 solid miles—a mass of water which would have taken upward of forty years to pour over Niagara at the computed rate of 1,000,000 cubic feet in a second. As the entire basin of this water system falls short of 300,000 square miles, the surface of the land is only three times that of the water.

HOW THE UNITED STATES GOT ITS LANDS.—The United States bought Louisiana, the vast region between the Mississippi River, the eastern and northern boundary of Texas (then belonging to Spain), and the dividing ridge of the Rocky Mountains, together with what is now Oregon, Washington Territory, and the western parts of Montana and Idaho, from France for $11,250,000. This was in 1803. Before the principal, interest, and claims of one sort and another assumed by the United States were settled, the total cost of this "Louisiana purchase," comprising, according to French construction and our understanding, 1,171,931 square miles, swelled to $23,500,000, or almost $25 per section—a fact not stated in cyclopedias and school histories, and therefore not generally understood. Spain still held Florida and claimed a part of what we understood to be included in the Louisiana purchase—a strip up to north latitude 31—and disputed our boundary along the south and west, and even claimed Oregon. We bought Florida and all the disputed land east of the Mississippi and her claim to Oregon, and settled our southwestern boundary dispute for the sum of $6,500,000. Texas smilingly proposed annexation to the United States, and this great government was "taken in" December 29, 1845, Texas keeping her public lands and giving us all her State debts and a three-year war (costing us $66,000,000) with Mexico, who claimed her for a runaway from Mexican jurisdiction. This was a bargain that out-yankeed the Yankees, but the South insisted on it and the North submitted. After conquering all the territory now embraced in New Mexico, a part of Colorado, Arizona, Utah, Nevada and California, we paid Mexico $25,000,000 for it—$15,000,000 for the greater part of it and $10,000,000 for another slice, known as the "Gadsden purchase." In 1867 we bought Alaska from Russia for $7,200,000. All the several amounts above named were paid long ago. As for all the rest of our landed possessions, we took them with us when we cut loose from mother Britain's apron string, but did not get a clear title until we had fought ten years for it—first in the Revolutionary War, costing us in killed 7,343 reported—besides the unreported killed—and over 15,000 wounded, and $135,193,103 in money; afterward in the War of 1812–15, costing us in killed 1,877, in wounded 3,737, in money $107,159,003. We have paid everybody but the Indians, the only real owners, and, thanks to gunpowder, sword, bayonet, bad whisky, small-pox, cholera and other weapons of civilization, there are not many of them left to complain. Besides all the beads, earrings, blankets, pots, kettles, brass buttons, etc., given them for land titles in the olden times, we paid them, or the Indian agents, in one way and another, in the ninety years from 1791 to 1881, inclusive, $193,672,697.31, to say nothing of the thousands of lives sacrificed and many millions spent in Indian wars, from the war of King Philip to the last fight with the Apaches.

ILLUSTRIOUS MEN AND WOMEN.—It is not likely that any two persons would agree as to who are entitled to the first fifty places on the roll of great men and great women. Using "great" in the sense of eminence in their professions, of great military commanders the following are among the chief: Sesostris, the Egyptian conqueror, who is represented as having subdued all Asia to the Oxus and the Ganges, Ethiopia, and a part of Europe; Cyrus the Great; Alexander the Great; Hannibal; Che-Hwanti, who reduced all the kingdoms of China and Indo-China to one empire, and constructed the Great Wall; Cæsar; Genghis Khan, the Tartar chief, who overran all Asia and a

considerable part of Europe; Napoleon Bonaparte; Ulysses S. Grant, and General Von Moltke. Among the most illustrious benefactors of mankind, as statesmen, lawgivers and patriots, stand Moses, David, Solon, Numa Pompilius, Zoroaster, Confucius, Justinian, Charlemagne, Cromwell, Washington and Lincoln. Eminent among the philosophers, rhetoricians and logicians stand Socrates, Plato, Aristotle, Seneca, the two Catos, and Lord Bacon; among orators, Pericles, Demosthenes, Cicero, Mirabeau, Burke, Webster and Clay; among poets, Homer, Virgil, Dante, Milton, and Shakespeare; among painters and sculptors, Phidias, Parrhasius, Zenxis, Praxiteles, Scopas, Michael Angelo, Raphael and Rubens; among philanthropists, John Howard; among inventors, Archimedes, Watt, Fulton, Arkwright, Whitney and Morse; among astronomers, Copernicus, Galileo, Tycho Brahe, Newton, La Place and the elder Herschel. Here are sixty names of distinguished men, and yet the great religious leaders, excepting Moses and Zoroaster, have not been named. Among these stand Siddhartha or Buddha, Mahomet, Martin Luther, John Knox and John Wesley. Then the great explorers and geographers of the world have not been noticed, among whom Herodotus, Strabo, Pliny, Vasco de Gama, Columbus and Humboldt barely lead the van.

Of eminent women there are Seling, wife of the Emperor Hwang-ti, B. C. 2637, who taught her people the art of silk-raising and weaving; Semiramis, the Assyrian Queen; Deborah, the heroic warrior prophetess of the Israelites; Queen Esther, who, with the counsel of her cousin, Mordecai, not only saved the Jews from extermination, but lifted them from a condition of slavery into prosperity and power; Dido, the founder of Carthage; Sappho, the eminent Grecian poetess; Hypatia, the eloquent philosopher; Mary, the mother of Christ; Zenobia, Queen of Palmyra; the mother of St. Augustine; Elizabeth of Hungary; Queen Elizabeth of England; Queen Isabella of Spain; the Empress Maria Theresa; Margaret the Great of Denmark; Catherine the Great of Russia, Queen Victoria; Florence Nightingale; Mme. de Stael: Mrs. Fry, the philanthropist; among authoresses, Mrs. Hemans, Mrs. Sigourney, Mrs. Browning, "George Sand," "George Eliot," and Mrs. Stowe; and among artists, Rosa Bonheur, and our own Harriet Hosmer.

The Suez Canal.—The Suez Canal was begun in 1,858 and was formally opened in November, 1869. Its cost, including harbors, is estimated at $100,000,000. Its length is 100 miles, 75 of which were excavated; its width is generally 325 feet at the surface, and 75 feet at the bottom, and its depth 26 feet. The workmen employed were chiefly natives, and many were drafted by the Khedive. The number of laborers is estimated at 30,000. The British government virtually controls the canal as it owns most of the stock.

Sending Vessels Over Niagara Falls.—There have been three such instances. The first was in 1827. Some men got an old ship—the Michigan—which had been used on lake Erie, and had been pronounced unseaworthy. For mere wantonness they put aboard a bear, a fox, a buffalo, a dog and some geese and sent it over the cataract. The bear jumped from the vessel before it reached the rapids, swam toward the shore, and was rescued by some humane persons. The geese went over the falls, and came to the shore below alive, and, therefore, became objects of great interest, and were sold at high prices to visitors at the Falls. The dog, fox, and buffalo were not heard of or seen again. Another condemned vessel, the Detroit, that had belonged to Commodore Perry's victorious fleet, was started over the cataract in the winter of 1841, but grounded about midway in the rapids, and lay there till knocked to pieces by the ice. A somewhat more picturesque instance was the sending over the Canada side of a ship on fire. This occurred in 1837. The vessel was the Caroline, which had been run in the interest of the insurgents in the Canadian rebellion. It was captured by Colonel McNabb, an officer of the Canada milltia, and by his orders it was set on fire then cut loose from its moorings. All in flames, it went glaring and hissing down the rapids and over the precipice, and smothered its ruddy blaze in the boiling chasm below. This was witnessed by large crowds on both sides of the falls, and was described as a most magnificent sight. Of course there was no one on board the vessel.

Old Time Wages in England.—The following rates of daily wages "determined" by the Justices of Somerset, in 1685, answer this question very fairly. Somerset being one of the average shires of England. The orthography is conformed to original record:

	s.	d.
Mowers per diem, findeing themselves	1	2
Mowers at meate and drinke	0	7
Men makeing hay per diem, findeing themselves	0	10
Men at meate and drinke	0	6
Women makeing hay	0	7
Women at meate and drinke	0	4
Men reapeing corne per diem, findeing themselves	1	2
Men reapinge corne at meate and drinke	0	8
Moweing an acre of grasse, findeing themselves	1	2
Moweing an acre of grasse to hay	1	6
Moweing an acre of barley	1	1
Reapeinge and bindeinge an acre of wheate	3	0
Cuttinge and bindeinge an acre of beanes and hookinge	2	0

The shilling is about 24 cents and the penny 2 cents.

Declaration of Independence Signers.—The following is the list of names appended to that famous document, with the colony which each represented in Congress:

New Hampshire—Josiah Bartlett; William Whipple, Matthew Thornton.

Massachusetts—John Hancock, John Adams, Samuel Adams, Robert Treat Paine.

Rhode Island—Elbridge Gerry, Stephen Hopkins, William Ellery.

Connecticut—Roger Sherman, Samuel Huntington, William Williams, Oliver Wolcott.

New York—William Floyd, Philip Livingston, Francis Lewis, Lewis Morris.

New Jersey—Richard Hockton, John Witherspoon, Francis Hopkinson, John Hart, Abraham Clark.

Pennsylvania—Robert Morris, Benjamin Rush, Benjamin Franklin, John Morton, George Clymer, James Smith, George Taylor, James Wilson, George Ross.

Delaware—Cæsar Rodney, George Reed, Thomas McKean.

Maryland—Samuel Chase, Thomas Stone, William Paca, Charles Carroll, of Carrollton.

Virginia—George Wythe, Richard Henry Lee, Thomas Jefferson, Benjamin Harrison, Thomas Nelson, Jr., Francis Lightfoot Lee, Carter Braxton.

North Carolina—William Hooper, Joseph Hewes, John Penn.

South Carolina—Edward Rutledge, Thomas Heyward, Jr., Thomas Lynch, Jr., Arthur Middleton.

Georgia—Button Gwinntet, Lyman Hall, George Walton.

Life of Ethan Allen.—Colonel Ethan Allan was captured in an attack upon Montreal, September 25, 1775. He was sent as prisoner to Great Britain, ostensibly for trial, but in a few months was sent back to America, and

confined in prison ships and jails at Halifax and New York till May 3, 1778, when he was exchanged. During most of his captivity he was treated as a felon and kept heavily ironed, but during 1777 was allowed restricted liberty on parole. After his exchange he again offered his services to the patriot army, but because of trouble in Vermont was put in command of the militia in that State. The British authorities were at that time making especial efforts to secure the allegiance of the Vermonters, and it was owing to Allen's skillful negotiations that the question was kept open until the theater of war was changed, thus keeping the colony on the American side, but avoiding the attacks from the British that would certainly have followed an open avowal of their political preferences. Allen died at Burlington, Vt., February 13, 1789.

Burial Customs.—Among the early Christians the dead were buried with the face upward and the feet toward the east, in token of the resurrection at the coming again of the Sun of Righteousness. It cannot be said, however, that the custom was first used by the Christians. It was in practice among early pagan nations also, and is regarded as a survival of the ideas of the fire-worshipers. The sun, which was the impersonation of deity to many primitive races, had his home in their mythology in the east, and out of respect for him the dead were placed facing this quarter, among certain tribes always in a sitting posture. It may also be remarked that among other races the position was reversed, the dead body being placed with its feet toward the west, because the region of sunset was the home of the departed spirits.

The Surrender of Lee to Grant.—The surrender of General Lee was made at the house of a farmer named McLean, in Appomattox village, that house having been selected by General Lee himself at General Grant's request for the interview. General Grant went thither, and was met by General Lee on the threshold. The two went into the parlor of the house, a small room, containing little furnishing but a table and several chairs. About twenty Union officers besides General Grant were present, among them the members of the General's staff. The only Confederate officer with General Lee was Colonel Marshall, who acted as his secretary. General Lee, as well as his aid, was in full uniform, and wore a burnished sword which was given him by the State of Virginia; General Grant was in plain uniform, without a sword. After a brief conversation, relative to the meeting of the two generals while soldiers in Mexico, General Lee adverted at once to the object of the interview by asking on what terms the surrender of his army would be received. General Grant replied that officers and men must become prisoners of war, giving up of course all munitions, weapons and supplies, but that a parole would be accepted. General Lee then requested that the terms should be put in writing, that he might sign them. General Badeau says that while General Grant was writing the conditions of surrender he chanced to look up and his eye caught the glitter of General Lee's sword, and that this sight induced him to insert the provision that the "officers should be allowed to retain their side-arms, horses and personal property." This historian thinks that General Lee fully expected to give up his sword, and that General Grant omitted this from the terms of surrender out of consideration for the feelings of a soldier. Badeau says that General Lee was evidently much touched by the clemency of his adversary in this regard. The Confederate chief now wrote his acceptance of the terms offered and signed them. He further requested that the cavalry and artillery soldiers might be allowed to retain their horses as well as the officers, to which General Grant consented, and asked that a supply train left at Danville might be allowed to pass on, as his soldiers were without food. The reply of General Grant to this was an order that 25,000 rations should be immediately issued from the commissariat of the National army to the Army of Northern Virginia. The formal papers were now drawn up and signed, and the interview which ended one of the greatest wars of modern times was over.

Colored Population at Each Census.—The following will show the white and colored population of the United States, from 1790 to 1890, inclusive:

Year.	White.	Colored. Free.	Colored. Slaves.
1790	3,172,006	59,527	697,681
1800	4,306,446	108,435	893,602
1810	5,862,073	186,446	1,191,362
1820	7,862,166	223,634	1,538,022
1830	10,538,378	319,599	2,009,043
1840	14,195,805	386,293	2,487,355
1850	19,553,068	434,495	3,204,313
1860	26,922,537	488,070	3,953,760
1870	33,589,377	4,880,009	None.
1880	43,402,970	6,580,973	None.
1890	50,000,000	7,470,040	None.

Arctic Explorations.—From 1496 to 1857 there were 134 voyages and land journeys undertaken by governments and explorers of Europe and America to investigate the unknown region around the North Pole. Of these, sixty-three went to the northwest, twenty-nine via Behring Straits, and the rest to the northeast or due north. Since 1857 there have been the notable expeditions of Dr. Hayes, of Captain Hall, those of Nordenskjold, and others sent by Germany, Russia and Denmark; three voyages made by James Lamont, of the Royal Geographical Society, England, at his own expense; the expeditions of Sir George Nares, of Leigh Smith, and that of the ill-fated Jeannette; the search expeditions of the Tigress, the Juniata, and those sent to rescue Lieutenant Greely; further, all the expeditions fitted out under the auspices of the Polar Commission—in which the Greely expedition was included—and a number of minor voyages, making a sum total of some sixty exploring journeys in these twenty-seven years.

The Battle of Waterloo.—The battle of Waterloo was fought June 18, 1815, between the allied British, Netherland and German troops under Wellington and the French under Napoleon. On June 16 Napoleon had attacked the Prussians under Blucher at Ligny and forced them to retreat toward Wavre, and Marshal Ney at the same time attacked the British and Dutch forces at Quatre Bras, but was forced to retire after an engagement of five hours. Napoleon's object, however, which was to prevent a union of the Prussians with Wellington's main army, was partially gained. The latter commander, having learned the next morning of Blucher's repulse, moved on to Waterloo expecting that the Prussian commander, according to previous arrangement, would join him there as speedily as possible. On June 17 Napoleon also moved toward Waterloo with the main body of his army, having directed Marshal Grouchy with 34,000 men and ninety-six guns to pursue Blucher's command toward Wavre. Both armies bivouacked on the field of Waterloo, and the next morning Napoleon, confident that Grouchy would prevent the arrival of the Prussians, delayed attack until the ground should become dry, a heavy shower having fallen on the day previous. The forces under Wellington occupied a semi-circular ridge a mile and a half in length, and the French were on an opposite ridge, the two being separated by a valley about 500 yards wide. The plan of Napoleon was to turn the allied left, force it back upon center, and gain possession of the enemy's line of retreat. To draw off Wellington's attention to his right, French troops were sent about 11 o'clock to attack the chateau of Houguemont, which the English had fortified. After a

fight of more than two hours this was still in the possession of its defenders. About 1 o'clock a Prussian corps under Bulow was seen approaching on the French right, and Napoleon, finding it necessary to send 10,000 men to check their advance, was obliged to change the plan of battle. He therefore ordered a fierce attack upon the allied center. Wellington massed his troops there, and the battle was obstinately maintained for five hours, with varying success to the participants, both commanders hourly expecting re-enforcements. Wellington was waiting for Blucher and Napoleon for Grouchy. The French at last were gaining ground; the allied troops in the center were wavering under Ney's impetuous onslaughts, General Durutte had forced back the left, and Bulow's troops on the right had been forced to yield the position they had taken. Now, however, there were rumors that Blucher's army was approaching and the allies again rallied. At 7 o'clock Napoleon, despairing of the approach of Grouchy, determined to decide the day by a charge of the Old Guard, which had been held in reserve. At this stage the advance of Prussian horse on the allied left forced back General Durutte's troops, and the Old Guard formed in squares to cover this retreat. Ney's division surrounded, made a gallant struggle—their brave leader still unwounded, though five horses had been shot under him, heading them on foot, sword in hand—but were forced to give way. The Old Guard held their ground against overwhelming numbers. Finally, when five squares were broken, the Emperor gave the order to "fall back." The cry "The Guard is repulsed" spread consternation through the French army and threatened to turn retreat into precipitate flight. Napoleon, seeing this, reformed the Guard in order to give a rallying point for the fugitives. Failing in this, he declared that he would die within the square, but Marshal Soult hurried him away. The heroic band, surrounded, was bidden to surrender. "The Old Guard dies, but never surrenders" is the reply popularly attributed to General Cambronne, and with the cry of "Vive l'Empereur!" the remnant of the Guard made a last charge upon the enemy and perished almost to a man. The forces of Blucher being now upon the field, the rout of the French was complete, and the Prussians pursued the fleeing troops, capturing guns and men. There is no doubt that the failure of Grouchy to come upon the field caused Napoleon to lose his last great battle. It was subsequently asserted that this marshal was bribed, but there seems to be no real foundation for so base a charge. The trouble was that he had been ordered by Napoleon to follow the Prussians toward Wavre and thought it necessary to follow the strict letter of his instructions. Before he reached the village the main body of the Prussian force was on its way to Waterloo, but one division had been left there to occupy his attention. Engaged in skirmishing with this, he paid no attention to the advice of his subordinate generals who, hearing the terrible cannonading at Waterloo, besought him to go to the aid of the army there. Napoleon believing that he was either holding back Blucher's forces or was hotly pursuing them, did not recall him to the main army, and the decisive battle was lost. Grouchy was summoned before a council of war, but the court declared itself incompetent to decide his case, and nothing further came of it.

OUR NATIONAL CEMETERIES. — National Cemeteries for soldiers and sailors may be said to have originated in 1850, the army appropriation bill of that year appropriating money for a cemetery near the City of Mexico, for the interment of the remains of soldiers who fell in the Mexican War. The remains of Federal soldiers and sailors who fell in the war for the Union have been buried in seventy-eight cemeteries exclusive of those interred elsewhere, a far greater number. In the subjoined list are given the names and locations of the National Cemeteries with the number therein buried, known and unknown. We have no means of knowing what cemeteries also contain the bodies of Southern soldiers:

	Known.	Unkn'n.
Cypress Hill, N. Y.	3,675	76
Woodlawn, Elmira, N. Y.	3,096	.....
Beverly, N. J.	142	7
Finn's Point, N. J.	.....	2,644
Gettysburg, Pa.	1,967	1,608
Philadelphia, Pa.	1,880	28
Annapolis, Md.	2,289	197
Antietam, Md.	2,853	1,811
London Park, Baltimore, Md.	1,627	166
Laurel, Baltimore, Md.	232	6
Soldiers' Home, D. C.	5,313	288
Battle, D. C.	13	.....
Grafton, W. Va.	634	620
Arlington, Va.	11,911	4,349
Alexandria, Va.	3,434	124
Ball's Bluff, Va.	1	24
Cold Harbor, Va.	672	1,281
City Point, Va.	3,779	1,374
Culpepper, Va.	454	910
Danville, Va.	1,171	155
Fredericksburg, Va.	2,487	12,770
Fort Harrison, Va.	239	575
Glendale, Va.	233	961
Hampton, Va.	4,868	494
Poplar Grove, Va.	2,197	3,993
Richmond, Va.	841	5,700
Seven Pines Va.	150	1,208
Staunton, Va.	233	520
Winchester, Va.	2,094	2,361
Yorktown, Va.	748	1,434
Newbern, N. C.	2,174	1,077
Raleigh, N. C.	625	553
Salisbury, N. C.	94	12,032
Wilmington, N. C.	710	1,398
Beaufort, S. C.	4,748	4,493
Florence, S. C.	199	2,799
Andersonville, Ga.	12,878	959
Marietta, Ga.	7,182	2,963
Barrancas, Fla.	791	657
Mobile, Ala.	751	112
Corinth, Miss.	1,788	3,920
Natchez, Miss.	308	2,780
Vicksburg, Miss.	3,896	12,704
Alexandria, La.	534	772
Baton Rouge, La.	2,468	495
Chalmette, La.	6,833	5,675
Port Hudson, La.	596	3,218
Brownsville, Texas	1,409	1,379
San Antonio, Texas	307	167
Fayetteville, Ark.	431	781
Fort Smith, Ark.	706	1,152
Little Rock, Ark.	3,260	2,337
Chattanooga, Tenn.	7,993	4,963
Fort Donelson, Tenn.	158	511
Knoxville, Tenn.	2,089	1,046
Memphis, Tenn.	5,159	8,817
Nashville, Tenn.	11,824	4,692
Pittsburg Landing, Tenn.	1,229	2,361
Stone River, Tenn.	3,820	2,314
Camp Nelson, Ky.	2,477	1,165
Cave Hill, Louisville, Ky.	3,342	583
Danville, Ky.	346	12
Lebanon, Ky.	591	277

	Known.	Unkn'n.
Lexington, Ky	824	105
Logan's, Ky	345	366
Crown Hill, Indianapolis, Ind	686	36
New Albany, Ind	2,138	676
Camp Butler, Ill	1,007	355
Mound City, Ill	2,505	2,721
Rock Island, Ill	280	9
Jefferson Barracks, Mo	8,569	2,906
Jefferson City, Mo	348	412
Springfield, Mo	845	713
Fort Leavenworth, Kas	821	913
Fort Scott, Kas	388	161
Keokuk, Iowa	610	21
Fort Gibson, I. T	212	2,212
Fort McPherson, Neb	149	291
City of Mexico, Mexico	254	750

THE CATACOMBS OF PARIS.—The so-called catacombs of Paris were never catacombs in the ancient sense of the word, and were not devoted to purposes of sepulture until 1784. In that year the Council of State issued a decree for clearing the Cemetery of the Innocents, and for removing its contents, as well as those of other graveyards, into the quarries which had existed from the earlier times under the city of Paris and completely undermined the southern part of the city. Engineers and workmen were sent to examine the quarries and to prop up their roofs lest the weight of buildings above should break them in. April 7, 1786, the consecration of the catacombs was performed with great solemnity, and the work of removal from the cemeteries was immediately begun. This work was all performed by night; the bones were brought in funeral cars, covered with a pall, and followed by priests chanting the service of the dead, and when they reached the catacombs the bones were shot down the shaft. As the cemeteries were cleared by order of the government, their contents were removed to this place of general deposit, and these catacombs further served as convenient receptacles for those who perished in the revolution. At first the bones were heaped up without any kind of order except that those from each cemetery were kept separate, but in 1810 a regular system of arranging them was commenced, and the skulls and bones were built up along the wall. From the main entrance to the catacombs, which is near the barriers d' Enfer, a flight of ninety steps descends, at whose foot galleries are seen branching in various directions. Some yards distant is a vestibule of octagonal form, which opens into a long gallery lined with bones from floor to roof. The arm, leg and thigh bones are in front, closely and regularly piled, and their uniformity is relieved by three rows of skulls at equal distances. Behind these are thrown the smaller bones. This gallery conducts to several rooms resembling chapels, lined with bones variously arranged. One is called the "Tomb of the Revolution," another the "Tomb of Victims," the latter containing the relics of those who perished in the early period of the revolution and in the "Massacre of September." It is estimated that the remains of 3,000,000 human beings lie in this receptacle. Admission to these catacombs has for years been strictly forbidden on account of the unsafe condition of the roof. They are said to comprise an extent of about 3,250,000 square yards.

HISTORY OF THE TELEPHONE.—The principle of the telephone, that sounds could be conveyed to a distance by a distended wire, was demonstrated by Robert Hook in 1667, but no practical application was made of the discovery until 1821, when Professor Wheatstone exhibited his "Enchanted Lyre," in which the sounds of a music-box were conveyed from a cellar to upper rooms. The first true discoverer of the speaking telephone, however, was Johann Philipp Reis, a German scientist and professor in the institute at Friedrichsdorf. April 25, 1861, Reis exhibited his telephone at Frankfort. This contained all the essential features of the modern telephone, but as its commercial value was not at all comprehended, little attention was paid to it. Reis, after trying in vain to arouse the interest of scientists in his discovery, died in 1874, without having reaped any advantage from it, and there is no doubt that his death was hastened by the distress of mind caused by his continual rebuffs. Meanwhile, the idea was being worked into more practical shape by other persons, Professor Elisha Gray and Professor A. G. Bell, and later by Edison. There is little doubt that Professor Gray's successful experiments considerably antedated those of the others, but Professor Bell was the first to perfect his patent. February 12, 1877, Bell's articulating telephone was tested by experiments at Boston and Salem, Mass., and was found to convey sounds distinctly from one place to the other, a distance of eighteen miles. This telephone was exhibited widely in this country and in Europe during that year, and telephone companies were established to bring it into general use. Edison's carbon "loud-speaking" telephone was brought out in 1878. It is not worth while to go into details of the suits on the subject of priority of invention. The examiner of patents at Washington, July 21, 1883, decided that Professor Bell was the first inventor, because he was the first to complete his invention and secure a full patent. Since 1878 there have been many improvements in the different parts of the telephone, rendering it now nearly perfect in its working.

SECESSION AND READMISSION OF REBEL STATES.—

	Seceded.	Readmitted.
South Carolina	Dec. 20, 1860.	June 11, 1868.
Mississippi	Jan. 9, 1861.	Feb. 3, 1870.
Alabama	Jan. 11, 1861.	June 11, 1868.
Florida	Jan. 11, 1861.	June 11, 1868.
Georgia	Jan. 19, 1861.	April 20, 1870.
Louisiana	Jan. 26, 1861.	June 11, 1868.
Texas	Feb. 1, 1861.	Mar. 15, 1870.
Virginia	April 16, 1861.	Jan. 15, 1870.
Arkansas	May 6, 1861.	June 20, 1868.
North Carolina	May 21, 1861.	June 11, 1868.
Tennessee	June 24, 1861.	July, 1866.

THE EARTHQUAKE OF 1811–12.—The earthquake shocks felt on the shores of the Lower Mississippi in the years 1811-12 are recorded as among the most remarkable phenomena of their kind. Similar instances where earth disturbances have prevailed, severely and continuously, far from the vicinity of a volcano, are very rare indeed. In this instance, over an extent of country stretching for 300 miles southward from the mouth of the Ohio river, the ground rose and sank in great undulations, and lakes were formed and again drained. The shocks were attended by loud explosions, great fissures—generally traveling from northeast to southwest, and sometimes more than half a mile in length—were opened in the earth, and from these openings mud and water were thrown often to the tops of the highest trees. Islands in the Mississippi were sunk, the current of the river was driven back by the rising of its bed, and overflowed the adjacent lands. More than half of New Madrid county was permanently submerged. The inhabitants noticed that these earth movements were sometimes vertical and sometimes horizontal, the former being by far the most serious in their effects. These disturbances ceased March 26, 1812, simultaneously with the great earthquake which destroyed the city of Caracas, South America.

THE DARK DAY IN NEW ENGLAND.—On May 19, 1780, there was a remarkable darkening of the sky and atmosphere over a large part of New England, which caused

much alarm among those who witnessed it. The darkness began between ten and eleven o'clock on the day named, and continued in some places through the entire day, and was followed by an unusually intense degree of blackness during the ensuing night. This phenomenon extended from the northeastern part of New England westward as far as Albany, and southward to the coast of New Jersey. The most intense and prolonged darkness, however, was confined to Massachusetts, especially to the eastern half of the State. It came up from the southwest, and overhung the country like a pall. It was necessary to light candles in all the houses, and thousands of good people, believing that the end of all things terrestrial had come, betook themselves to religious devotions. One incident of the occasion has been woven into verse with excellent effect by the poet Whittier. The Connecticut Legislature was in session on that day, and as the darkness came on and grew more and more dense, the members became terrified, and thought that the day of judgment had come; so a motion was made to adjourn. At this, a Mr. Davenport arose and said: "Mr. Speaker, it is either the day of judgment, or it is not. If it is not, there is no need of adjourning. If it is, I desire to be found doing my duty. I move that candles be brought and that we proceed to business." Mr. Davenport's suggestion was taken, candles were brought in, and business went on as usual. As to the explanation of this phenomenon, scientists have been much puzzled. It was plain from the falling of the barometer that the air was surcharged with heavy vapor. The darkness then, it might be said, was only the result of a dense fog, but the question of the cause of so remarkable a fog was still unanswered. Omitting this unascertained primary cause, then, Professor Williams, of Harvard College, who subsequently made a thorough investigation of the matter, gave it as his opinion that this unprecedented quantity of vapor had gathered in the air in layers so as to cut off the rays of light, by repeated refraction, in a remarkable degree. He thought that the specific gravity of this vapor must have been the same as that of the air, which caused it to be held so long in suspension in the atmosphere. In this case the extent of the darkness would coincide with the area of the vapor, and it would continue until a change in the gravity of the air caused the vapors to ascend or descend. In some places when the darkness cleared it was as if the vapor was lifted and borne away by the wind like a dark pall, and in others, after a period of intense darkness the atmosphere gradually lightened again. In our day, a phenomenon of this kind would be thoroughly investigated to its most remote possible cause; but then owing to the sparse settlement of the country and the difficulties of travel, the investigation of distant causes could not be made. Large fires may have prevailed that spring in the forests of Western New York and Pennsylvania—a region then an absolute wilderness—the smoke of which was borne through the upper regions of the atmosphere, to fall when it came to a locality of less buoyant air, down to the lower strata. We say these fires may have recently preceded this day, and served as its sufficient cause, but we have only presumptive evidence that they did occur. Had Professor Williams entertained a supposition of the previous existence of such fires, he had then no means of verifying it, and long before the advent of railroads and telegraphs, or even of stage lines, the scientific theories of the dark day had passed from the general memory.

A Short History of the Liberty Bell.—In 1751 the Pennsylvania Assembly authorized a committee to procure a bell for their State House. November 1st of that year an order was sent to London for "a good bell of about 2,000 pounds weight." To this order were added the following directions: "Let the bell be cast by the best workmen and examined carefully before it is shipped, with the following words well shaped in large letters around it, viz.: 'By order of the Assembly of the Province of Pennsylvania, for the State House, in the city of Philadelphia, 1752.' And underneath, 'Proclaim Liberty Through All the Land Unto All the Inhabitants Thereof. —Levit. xxv. 10.'" In due time, in the following year, the bell reached Philadelphia, but when it was hung, early in 1753, as it was being first rung to test the sound, it cracked without any apparent reason, and it was necessary to have it recast. It was at first thought to be necessary to send it back to England for the purpose, but some "ingenious workmen" in Philadelphia wished to do the casting and were allowed to do so. In the first week of June, 1753, the bell was again hung in the belfry of the State House. On July 4, 1776, it was known throughout the city that the final decision on the question of declaring the colonies independent of Great Britain was to be made by the Continental Congress, in session at the State House. Accordingly the old bellman had been stationed in the belfry on that morning, with orders to ring the bell when a boy waiting at the door of the State House below should signal to him that the bill for independence had been passed. Hour after hour the old man stood at his post. At last, at 2 o'clock, when he had about concluded that the question would not be decided on that day at least, the watchman heard a shout from below, and looking down saw the boy at the door clapping his hands and calling at the top of his voice: "Ring! ring!" And he did ring, the story goes, for two whole hours, being so filled with excitement and enthusiasm that he could not stop. When the British threatened Philadelphia, in 1777, the precious bell was taken down and removed to the town of Bethlehem for safety. In 1778 it was returned to the State House and a new steeple built for it. Several years after it cracked, for some unknown reason, under a stroke of the clapper, and its tone was thus destroyed. An attempt was made to restore its tone by sawing the crack wider, but without success. This bell was sent to New Orleans during the winter to be exhibited in the World's Fair there. The Pullman Company gave one of their handsomest cars for the transit. It was in the charge of three custodians appointed by the Mayor of Philadelphia, who did not leave it night or day, and guarded it as fully as possible against accident. A pilot engine preceded the train carrying the bell over the entire route. It left Philadelphia Jan. 24, 1885, and returned in June.

The Antarctic Polar Regions.—The climate of the southern polar regions is much more severe than that at the north pole, the icefields extending 10 degrees nearer the equator from the south than from the north. Within the arctic circle there are tribes of men living on the borders of the icy ocean on both the east and west hemispheres, but within the antarctic all is one dreary, uninhabitable waste. In the extreme north the reindeer and the musk-ox are found in numbers, but not a single land quadruped exists beyond 50 degrees of southern latitude. Flowers are seen in summer by the arctic navigator as far as 78 degrees north, but no plant of any description, not even a moss or a lichen, has been observed beyond Cockburn Island, in 64 degrees 12 minutes south latitude. In Spitzbergen, 79 degrees north, vegetation ascends the mountain slopes to a height of 3,000 feet, but on every land within or near the antarctic circle the snow-line descends to the water's edge. The highest latitude ever reached at the south is 78 degrees 10 minutes, while in the north navigators have penetrated to 84 degrees. The reason for this remarkable difference is the predominance of

large tracts of land in the northern regions, while in the south is a vast expanse of ocean. In the north continental masses form an almost continuous belt around the icy sea, while in the southern hemisphere the continents taper down into a broad extent of frigid waters. In the north the plains of Siberia and of the Hudson's Bay territories, warmed by the sunbeams of summer, become at that season centers of radiating heat, while the antarctic lands, of small extent, isolated in the midst of a polar ocean and chilled by cold sea winds, act at every season as refrigerators of the atmosphere. Further in the north the cold currents of the polar sea, having but two openings of any extent through which they can convey drift ice, have their chilly influence confined to comparatively narrow limits, but the cold currents of the antarctic seas have scope to branch out freely on all sides and carry their ice even into temperate waters. Finally, at the northern hemisphere, the Gulf Stream conveys warmth even to the shores of Spitzbergen and Nova Zembla, while on the opposite regions of the globe no traces of warm currents have been observed beyond 55 degrees of south latitude.

The Language Used by Christ.—The language used by Christ was the Aramaic, the dialect of Northern Syria. The Israelites were much in contact with Aramæan populations, and some words from that tongue became incorporated into the Hebrew at a very early date. At the time of Hezekiah, Aramaic had become the official language of both Judea and Assyria; that is, the language spoken at the courts. After the fall of Samaria the Hebrew inhabitants of Northern Israel were largely carried into captivity, and their place was taken by colonists from Syria, who probably spoke Aramaic as their mother tongue. The fall of the Jewish Kingdom hastened the decay of Hebrew as a spoken language—not that the captives forgot their own language, as is generally assumed, but after the return to Judea the Jews found themselves, a people few in number, among a large number of surrounding populations using the Aramaic tongue. When the latest books of the Old Testament were written, Hebrew, though still the language of literature, had been supplanted by Aramaic as the language of common life. From that time on the former tongue was the exclusive property of scholars, and has no history save that of a merely literary language.

How Ancient Temples and Pyramids Were Built.—This is beyond modern conjecture, so imperfect is our understanding of the extent of the mechanical knowledge of the ancients. Their appliances are believed to have been of the simplest order, and their implements exceedingly crude, and yet they were able to convey these enormous blocks of stones for vast distances, over routes most difficult, and having accomplished this, to raise them to great height, and fit them in place without the aid of either cement or mortar to cover up the errors of the stonecutter. How all this was done is one of the enigmas of modern science. It has been generally believed that inclined planes of earth were used to enable the workmen to raise the huge stones to their places, the earth being cleared away afterward. But it is possible that the ancients had a more extended knowledge of mechanical powers than we usually give them credit for, and that they made use of machinery very like that employed by moderns for lifting great weights. Large cavities are found in some of the stones in the pyramids, which may have been worn by the foot of a derrick turning in them. That there were enormous numbers of men employed in the building of these ancient structures is well known; these results of their great aggregated strength we see, but they left no record of the means by which this strength was focused and brought most effectually to bear on their mighty tasks.

The First Atlantic Cable.—As early as 1842 Professor Morse declared a submarine cable connection between America and Europe to be among the possibilities, but no attempt toward this great achievement was made until 1854, when Cyrus Field established a company, which secured the right of landing cables in Newfoundland for fifty years. In 1858 soundings between Ireland and Newfoundland were completed, showing a maximum depth of 4,400 meters. Having succeeded in laying a cable between Nova Scotia and Newfoundland, Mr. Field secured the co-operation of English capitalists in his enterprise. The laying of the cable was begun August 7, 1857, from the port of Valencia, Ireland, but on the third day it broke, and the expedition had to return. Early in the following year another attempt was made. The cable was laid from both ends at the same time, was joined in mid-ocean, but in lowering it was broken. Again, in the same year, the attempt was made, and this time connection was successfully made. The first message over the line was sent August 7, 1858. The insulation of this cable, however, was defective, and by September 4th had quite failed. Some time was now spent in experiments, conducted by scientists, to secure a more perfect cable. A new company was formed, and in 1865 the work again began. The Great Eastern was employed to lay the cable, but when it was partly laid serious defects in the line were discovered and in repairing these it broke. The apparatus for recovering the wire proving insufficient the vessel returned to England. A new company, called the Anglo-American, was formed in 1866, and again the Great Eastern was equipped for the enterprise. The plan of the new expedition was not only to lay a new cable, but also to take up the end of the old one and join it to a new piece, thus obtaining a second telegraph line. The vessel sailed from Valencia July 13, 1866, and July 27 the cable was completely laid to Heart's Content, Newfoundland, and a message announcing the fact sent over the wire to Lord Stanley. Queen Victoria sent a message of congratulation to President Buchanan on the 28th. September 2d the lost cable of 1865 was recovered and its laying completed at Newfoundland September 8, 1866.

Engraving on Eggs.—The art of engraving on eggs is very puzzling to the uninitiated, but in reality it is very simple. It merely consists in writing upon the egg-shell with wax or varnish, or simply with tallow, and then immersing the egg in some weak acid, such, for example, as vinegar, dilute hydrochloric acid, or etching liquor. Wherever the varnish or wax has not protected the shell, the lime of the latter is decomposed and dissolved in the acid, and the writing or drawing remains in relief. In connection with this art a curious incident is told in history. In the month of August, 1808, at the time of the Spanish war, there was found in a church in Lisbon an egg, on which was plainly foretold the utter destruction of the French, who then had control of the city. The story of the wonderful prophecy spread through the town, causing the greatest excitement among the superstitious populace, and a general uprising was expected. This, however, the French commander cleverly thwarted by causing a counter-prophecy, directly denying the first, to be engrossed on several hundred eggs, which were then distributed in various parts of the city. The astonished Portuguese did not know what to think of this new phenomenon, but its "numerousness," if we may so call it, caused it to altogether outweigh the influence of the first prediction, and there were no further symptoms of revolt against the French.

Cayenne Pepper.—The name of the plant genus from which cayenne pepper is obtained is capsicum, a name also given to the product of the plant. This genus belongs to

the solanaceæ, or night shade family, and has no relation to the family piperaceæ, which produces the shrub yielding black pepper. The plant which yields cayenne pepper is identical with the common red pepper of our gardens. It is an annual, a native of tropical countries, where it thrives luxuriantly even in the dryest soils, but it is also cultivated in other parts of the world. It grows to the height of two or three feet, and bears a fruit in the shape of a conical pod or seed-vessel, which is green when immature, but bright scarlet or orange when ripe. This pod, with its seeds, has a very pungent taste, and is used when green for pickling, and when ripe and dried is ground to powder to make cayenne pepper, or is used for medicine. This powder has a strongly stimulating effect, and is believed to aid digestion. It is also employed externally to excite the action of the skin.

The Big Trees of California.—There are several groves of Big Trees in California, the most famous of which are the Calaveras grove and the Mariposa grove. The Calaveras grove occupies what may be described as a band or belt 3,200 feet long and 700 in width. It is between two slopes, in a depression in the mountains, and has a stream winding through it, which runs dry in the summer time. In this grove the Big Trees number ninety-three, besides a great many smaller ones, which would be considered very large if it were not for the presence of these monarchs of the forest. Several of the Big Trees have fallen since the grove was discovered, one has been cut down, and one had the bark stripped from it to the height 116 feet from the ground. The highest now standing is the "Keystone State," 325 feet high and 45 feet in circumference; and the largest and finest is the "Empire State." There are four trees over 300 feet in height, and 40 to 61 feet in circumferenbe. The tree which was cut down occupied five men twenty-two days, which would be at the rate of one man 110 days, or nearly four months' work, not counting Sundays. Pump augers were used for boring through the giant. After the trunk was severed from the stump it required five men with immense wedges for three days to topple it over. The bark was eighteen inches thick. The tree would have yielded more than 1,000 cords of four-foot wood and 100 cords of bark, or more than 1,100 cords in all. On the stump of the tree was built a house, thirty feet in diameter, which the Rev. A. H. Tevis, an observant traveler, says contains room enough in square feet, if it were the right shape, for a parlor 12x16 feet, a dining-room 10x12, a kitchen 10x12, two bed-rooms 10 feet square each, a pantry 4x8, two clothes-presses 1½ feet deep and 4 feet wide, and still have a little to spare! The Mariposa grove is part of a grant made by Congress to be set apart for public use, resort and recreation forever. The area of the grant is two miles square and comprises two distinct groves about half a mile apart. The upper grove contains 365 trees, of which 154 are over fifteen feet in diameter, besides a great number of smaller ones. The average height of the Mariposa trees is less than that of the Calaveras, the highest Mariposa tree being 272 feet; but the average size of the Mariposa is greater than that of Calaveras. The "Grizzly Giant," in the lower grove, is 94 feet in circumference and 31 feet in diameter; it has been decreased by burning. Indeed, the forests at times present a somewhat unattractive appearance, as, in the past, the Indians, to help them in their hunting, burned off the chaparral and rubbish, and thus disfigured many of these splendid trees by burning off nearly all the bark. The first branch of the "Grizzly Giant" is nearly two hundred feet from the ground and is six feet in diameter. The remains of a tree, now prostrate, indicate that it had reached a diameter of about forty feet and a height of 400 feet; the trunk is hollow and will admit of the passage of three horsemen riding abreast. There are about 125 trees of over forty feet in circumference. Besides these two main groves there are the Tolumne grove, with thirty big trees; the Fresno grove, with over eight hundred spread over an area of two and a half miles long and one to two broad; and the Stanislaus grove, the Calaveras group, with from 700 to 800. There should be named in this connection the petrified forest near Calitoga, which contains portions of nearly one hundred distinct trees of great size, scattered over a tract of three or four miles in extent; the largest of this forest is eleven feet in diameter at the base and sixty feet long. It is conjectured that these prostrate giants were silicified by the eruption of the neighboring Mount St. Helena, which discharged hot alkaline waters containing silica in solution. This petrified forest is considered one of the great natural wonders of California.

History of the City of Jerusalem.—The earliest name of Jerusalem appears to have been Jebus, or poetically, Salem, and its king in Abraham's time was Melchizedek. When the Hebrews took possession of Canaan, the city of Salem was burned, but the fortress remained in the hands of the Jebusites till King David took it by storm and made it the capital of his kingdom. From that time it was called Jerusalem. During the reigns of David and Solomon it attained its highest degree of power. When ten of the Jewish tribes seceded under Jeroboam they made Shechem (and later Samaria) the capital of their kingdom of Israel, and Jerusalem remained the capital of the smaller but more powerful kingdom of Judah. The city was taken by Shishak, King of Egypt, in 971 B. C., was later conquered and sacked by Joash, King of Israel, and in the time of Ahaz, the King of Syria came against it with a large force, but could not take it. The city was besieged in Hezekiah's reign, by the army of Sennacherib, King of Assyria, but was saved by the sudden destruction of the invading army. After the death of Josiah, the city was tributary for some years to the King of Egypt, but was taken after repeated attempts by the Babylonians under Nebuchadnezzar in 586 B. C., and was left a heap of ruins. The work of rebuilding it began by order of King Cyrus about 538 B. C., who allowed the Jewish people who had been carried into captivity to return for this purpose. From this time Jerusalem enjoyed comparative peace for several hundred years and grew to be an important commercial city. When Alexander invaded Syria it submitted to him without resistance. After his death it belonged for a time to Egypt and in 198 B. C., passed with the rest of Judea under the rule of Syria. Antiochus the Great ruled it with mildness and justice, but the tyranny of his son, Antiochus Epiphanes, brought about the revolt, headed by the Maccabees, through which Jerusalem gained a brief independence. In 63 B. C., Pompey the Great took the city, demolished the walls and killed thousands of the people, but did not plunder it. However, nine years later Crassus robbed the temple of all its treasures. The walls were soon after rebuilt under Antipater, the Roman procurator, but when Herod came to rule over the city with the title of King, given him by the Roman Senate, he was resisted and only took possession after an obstinate siege, which was followed by the massacre of great numbers of the people. Herod improved and enlarged the city, and restored the temple on a more magnificent scale than in Solomon's time. Jerusalem is said at this time to have had a population of over 200,000. This period of wealth and prosperity was also rendered most memorable for Jerusalem by the ministry and crucifixion of Christ. About A. D. 66, the Jews, goaded to desperation by the tranny of the Romans, revolted, garrisoned Jerusalem, and defeated a Roman army sent against

them. This was the beginning of the disastrous war which ended with the destruction of the city. It was taken by Titus, in the year 70, after a long siege, all the inhabitants were massacred, or made prisoners, and the entire city left a heap of ruins. The Emperor Hadrian built on the site of Jerusalem a Roman city, under the name of Elia Capitolina, with a temple of Jupiter, and Jews were forbidden to enter the city under pain of death. Under Constantine it was made a place of pilgrimage for Christians, as the Emperor's mother, Helena, had with much pains located the various sites of events in the history of Christ. The Emperor Julian, on the contrary, not only allowed the Jews to return to their city, but also made an attempt, which ended in failure, to rebuild their temple. In 614 the Persian Emperor Chosroes invaded the Roman empire. The Jews joined his army, and after conquering the northern part of Palestine, the united forces laid siege to and took Jerusalem. The Jews wreaked vengeance on the Christians for what they had been forced to endure, and 20,000 people were massacred. The Persians held rule in the city for fourteen years; it was then taken by the Romans again, but in 636 the Caliph Omar beseiged it. After four months the city capitulated. It was under the rule of the Caliphs for 400 years, until the Seljuk Turks in 1077 invaded Syria and made it a province of their empire. Christian pilgrims had for many years kept up the practice of visiting tne tomb of Christ, as the Caliphs did not interfere with their devotions any further than by exacting a small tribute from each visitor. But the cruelties practiced upon the pilgrims by the Turks were many, and report of them soon roused all Europe to a pitch of indignation, and brought about that series of holy wars, which for a time restored the holy sepulcher into Christian hands. Jerusalem was stormed and taken July 15, 1099, and 50,000 Moslems were slaughtered by their wrathful Christian foes. The new sovereignty was precariously maintained until 1187, when it fell before the power of Saladin. Jerusalem, after a siege of twelve days, surrendered. Saladin, however, did not put his captives to death, but contented himself with expelling them from the city. Jerusalem passed into the hands of the Franks by treaty, in 1229, was retaken by the Moslems in 1239, once more restored in 1243, and finally conquered in 1244 by a horde of Kharesmian Turks. In 1517 Palestine was conquered by Sultan Selin I., and since then has been under the rule of the Ottoman Empire, except for a brief period—from 1832 to 1840, when it was in the hands of Mahomet Ali, Pasha of Egypt, and his son Ibrahim had his seat of government in Jerusalem.

THE BLACK DEATH.—This great plague, known as the "Black Death," was the most deadly epidemic ever known. It is believed to have been an aggravated outburst of the Oriental plague, which from the earliest records of history has periodically appeared in Asia and Northern Africa. There had been a visitation of the plague in Europe in 1342; the Black Death, in terrible virulence, appeared in 1348–9; it also came in milder form in 1361–2, and again in 1369. The prevalence and severity of the pestilence during this century is ascribed to the disturbed conditions of the elements that preceded it. For a number of years Asia and Europe had suffered from mighty earthquakes, furious tornadoes, violent floods, clouds of locusts darkening the air and poisoning it with their corrupting bodies. Whether these natural disturbances were the cause of the plague is not certainly known, but many writers on the subject regard the connection as both probable and possible. The disease was brought from the Orient to Constantinople, and early in 1347 appeared in Sicily and several coast towns of Italy. After a brief pause the pestilence broke out at Avignon in January, 1348; advanced thence to Southern France, Spain and Northern Italy. Passing through France and visiting, but not yet ravaging, Germany, it made its way to England, cutting down its first victims at Dorset, in August, 1348. Thence it traveled slowly, reaching London early in the winter. Soon it embraced the entire kingdom, penetrating to every rural hamlet, so that England became a mere pest-house. The chief symptoms of the disease are described as "spitting, in some cases actual vomiting, of blood, the breaking out of inflammatory boils in parts, or over the whole of the body, and the appearance of those dark blotches upon the skin which suggested its most startling name. Some of the victims died almost on the first attack, some in twelve hours, some in two days, almost all within the first three days." The utter powerlessness of medical skill before the disease was owing partly to the physicians' ignorance of its nature, and largely to the effect of the spirit of terror which hung like a pall over men's minds. After some months had passed, the practice of opening the hard boils was adopted, with very good effect, and many lives were thus saved. But the havoc wrought by the disease in England was terrible. It is said that 100,000 persons died in London, nearly 60,000 in Norwich, and proportionate numbers in other cities. These figures seem incredible, but a recent writer, who has spent much time in the investigation of records, asserts that at least half the population, or about 2,500,000 souls, of England perished in this outbreak. The ravages of the pestilence over the rest of the world were no less terrible. Germany is said to have lost 1,244,434 victims; Italy, over half the population. On a moderate calculation, it may be assumed that there perished in Europe during the first appearance of the Black Death, fully 25,000,000 human beings. Concerning the Orient we have less reliable records, but 13,000,000 are said to have died in China, and 24,000,000 in the rest of Asia and adjacent islands. The plague also ravaged Northern Africa, but of its course there little is known. The horrors of that dreadful time were increased by the fearful persecutions visited on the Jews, who were accused of having caused the pestilence by poisoning the public wells. The people rose to exterminate the hapless race, and killed them by fire and torture wherever found. It is impossible for us to conceive of the actual horror of such times.

MIGHTY HAMMERS.—An authority on scientific subjects give the weights of the great hammers used in the iron works of Europe, and their date of manufacture, as follows: At the Terni Works, Italy, the heaviest hammer weighs 50 tons, and was made in 1873; one at Alexandrovski, Russia, was made the following year of like weight. In 1877, one was finished at Creusot Works, France, weighing 80 tons; in 1885, one at the Cockerill Works, Belgium, of 100 tons, and in 1886, at the Krupp Works, Essen, Germany, one of 150 tons. The latter being the heaviest hammer in the world.

ASSASSINATION OF PRESIDENT GARFIELD.—July 2, 1881, at 9:25 A. M., as President Garfield was entering the Baltimore & Potomac Railroad depot at Washington, preparatory to taking the cars for a two weeks' jaunt in New England, he was fired upon and severely wounded by Charles Jules Guiteau, a native of Illinois, but of French descent. The scene of the assassination was the ladies' reception-room at the station. The President and Mr. Blaine, arm in arm, were walking slowly through the aisle between two rows of benches on either side of the room; when Guiteau entered by a side door on the left of the gentlemen, passed quickly around the back of the benches till directly behind the President, and fired the shot that struck his arm. Mr. Garfield walked about ten feet to the end of the aisle, and was in the act of turning to face his assailant when the second shot struck him in

the small of the back, and he fell. The assassin was immediately seized and taken to jail. The wounded president was conveyed in an ambulance to the White House. As he was very faint, the first fear was of internal hemorrhage, which might cause speedy death. But as he rallied in a few hours, this danger was thought to be averted and inflammation was now feared. But as symptoms of this failed to appear, the surgeons in attendance concluded that no important organ had been injured, that the bullet would become encysted and harmless, or might possibly be located and successfully removed. By the 10th of July, the reports were so favorable, that the president's recovery was regarded as certain, and public thanksgivings were offered in several of the States, by order of the governors, for his deliverance. The first check in the favorable symptoms occurred on July 18, and July 23 there was a serious relapse, attended with chills and fever. The wound had been frequently probed but without securing any favorable result. The induction balance was used to locate the ball, and was regarded as a success, though subsequently its indications were known to have been altogether erroneous. The probings, therefore, in what was assumed to be the track of the ball, only increased the unfavorable symptoms. During the entire month of August these reports were alternately hopeful and discouraging, the dangerous indications being generally on the increase. By August 25, his situation was understood to be very critical, though an apparent improvement on the 26th and 28th again aroused hope. At his own earnest desire the president was removed, September 6, to Elberon Park, near Long Branch, N. J., in the hope that the cooler air of the seaside might renew his strength more rapidly. However, the improvement hoped for did not appear. On September 16, there was a serious relapse, with well-marked symptoms of blood poisoning, and September 19 the president died. A post-mortem examination showed that the ball, after fracturing one of the ribs, had passed through the spinal column, fracturing the body of one of the vertebra, driving a number of small fragments of bone into the soft parts adjacent, and lodging below the pancreas, where it had become completely encysted. The immediate cause of death was hemorrhage from one of the small arteries in the track of the ball, but the principal cause was the poisoning of the blood from suppuration.

Coins of Foreign Countries.—The following carefully prepared summary indicates the coins in use in the various countries, taking their names in alphabetical order:

Argentine Republic—Gold coins: 20 peso piece, $19.94; 10 pesos, $9.97; 5 pesos, $4.98. Silver: 1 peso, 99 cents. The copper coin of the country is the centisimo, 100 of which make a peso or dollar.

Austria—Gold coins: 8 gulden piece, $3.86; 4 gulden, $1.93. Silver: Marie Theresa thaler, $1.02; 2 gulden, 96 cents; 1 gulden, 48 cents; ¼ gulden, 12 cents; 20 kreutzer, 10 cents; 10 kreutzer, 5 cents. Of the small copper coin current, known as the kreutzer, 100 make a gulden.

Brazil—Gold coins: 20 milrei piece, $10.91; 10 milreis, $5.45. Silver: 2 milreis, $1.09; 1 milreis, 55 cents; ½ milreis, 27 cents. The Portuguese rei is used for copper money, worth about ⅛ of a cent.

Chili—Gold coin: 10 pesos (or 1 condor), $9.10; 5 pesos, $4.55; 2 pesos, $1.82. Silver; 1 peso, 91 cents; 50 centavos, 45 cents; 20 centavos 18 cents; 10 centavos, 9 cents; 5 centavos, 4 cents. The copper coin is 1 centavo, 100th of a peso.

Colombia—Gold coins: Twenty peso piece, $19.30; 10 pesos, $9.65; 5 pesos, $4.82; 2 pesos, $1.93. Silver: 1 peso, 96 cents; 20 centavos, 19 cents; 10 centavos, 10 cents; 5 centavos, 5 cents. The copper centavo of Colombia is identical in value with our cent. (The currency of Coloumbia is also used in Venezuela.)

Denmark—Gold coins: Twenty kroner piece, $5.36; 10 kroner, $2.68. Silver: Two kroner, 53 cents; 1 krone, 27 cents; 50 ore, 13 cents; 40 ore, 10 cents; 25 ore, 6½ cents; 10 ore, 2½ cents. One hundred of the copper ore make one krone.

France—Gold coins: One hundred franc piece, $19.30; 50 francs, $9.65; 20 francs, $3.85; 10 francs, 1.93; 5 francs, 96 cents. Silver: Five francs, 96 cents; 2 francs, 38 cents; 1 franc, 19 cents; 50 centimes, 10 cents; 20 centimes, 4 cents. The copper coins are the sou, worth about 9½ mills, and the centime, 2 mills.

Germany—Gold coins: Twenty-mark piece, $4.76; 10 marks, $2.38; 5 marks, $1.19. Silver: Five marks, $1.19; 2 marks, 48 cents; 1 mark 24 cents; 50 pfennige, 12 cents; 20 pfennige, 5 cents. One hundred copper pfennige make one mark.

Great Britain—Gold coins: Poun d or sovereign, $4.86; guinea, $5.12. Silver: Five shillings or crown, $1.25; half crown, 62½ cents; shilling, 25 cents; sixpence, 12½ cents. Also a three-penny piece and a four-penny piece, but the latter is being called in, and is nearly out of circulation. The copper coins of Great Britain are the penny, half-penny and farthing.

India—Gold coins: Thirty rupees or double mohur, $14.58; 15 rupees or mohur, $7.29; 10 rupees, $4.86; 5 rupees, $2.43. Silver: One rupee, 48 cents, and coins respectively of the value of one-half, one-fourth and one-eighth rupee. In copper there is the pie, one-fourth of a cent; the pice, ¾ of a cent; the ana, 3 cents.

Japan—Gold coins: Twenty yen, $19.94; 10 yen, $9.97; 5 yen, $4.98; 2 yen, $1.99; 1 yen, 99 cents. Silver: The 50, 20, 10 and 5 sen pieces, answering respectively to 50, 20, 10 and 5 cents. In copper there is the sen, answering to 1 cent.

Mexico—Gold coins: Sixteen dollar piece, $15.74; 8 dollars, $7.87; 4 dollars, $3.93; 2 dollars, $1.96; 1 dollar 98 cents. Silver: 1 dollar, 98 cents; 50-cent piece, 49 cents; 25 cents, 24 cents. The Mexican cent, like our own, equals one-hundreth of a dollar.

Netherlands—Gold coins: Ten-guilder piece, $4.02; 5 guilders, $2.01. Silver: 2½ guilders, $1; 1 guilder, 40 cents; half-guilder, 20 cents; 25 cents, 10 cents; 10 cents, 4 cents; 5 cents, 2 cents. The Dutch copper cent is one-hundreth of the guilder.

Peru—Gold coins: Twenty-sol piece, $19.30; 10 sol, $9.65; 5 sol, $4.82; 2 sol, $1.93; 1 sol, 96 cents. Silver: 1 sol, 96 cents; 50 centesimos, 48 cents; 20, 10 and 5 centesimos, worth respectively 19, 10 and 5 cents. It will be noted that the Peruvian coinage is almost identical with that of Colombia. It is also used in Bolivia.

Portugal—Gold coins: Crown, $10.80; half-crown, $5.40; one-fifth crown, $2.16; one-tenth crown, $1.08. These gold pieces are also known respectively as 10, 5, 2 and 1 dollar pices. The silver coins are the 500, 200, 100 and 5 reis coins, worth respectively 54, 21, 11 and 5 cents. One thousand reis are equal to one crown.

Russia—Gold coins: Imperial or 10-ruble piece, $7.72; 5 rubles, $3.86; 3 rubles, $2.31. Silver: ruble, 77 cents; half-ruble, 38 cents; quarter-ruble, 19 cents; 20 copecks, 15 cents; 10 copecks, 7 cents; 5 copecks, 4 cents; 100 copecks are worth 1 ruble.

Turkey—Gold coins: Lira or medjidie, $4.40; half-lira, $2.20; quarter-lira, $1.10. The silver unit is the piastre, worth 4 cents of our currency, and silver coins of 1, 2, 5, 10 and 20 piastres are current.

The currency of Denmark is also in use in Norway and Sweden, these three countries forming the Scandinavian

Union. Belgium, France, Greece, Italy, Roumania, Servia, Spain and Switzerland are united in the Latin Union, and use the French coinage. The units in the different States are, it is true, called by different names; as in France, Belgium and Switzerland, franc and centime; in Italy, lira and centesimo; in Greece, drachm and lepta; in Roumania, lei and bani; in Servia, dinar and para; in Spain, peseta and centesimo; but in all cases the value is the same.

The similarity in the coinage of different countries is worth notice. A very slight change in the percentage of silver used would render the half-guilder of Austria, the krone of the Scandinavian Union, the franc of the Latin Union, the mark of Germany, the half-guilder of Holland, the quarter-ruble of Russia, the 200-reis piece of Portugal, the 5-piastre piece of Turkey, the half-milreis of Brazil and the half-rupee of India, all interchangeable with the English shilling, and all of them about the value of the quarter-dollar of North and South American coinage. With the exception of Brazil, the other South American States, as well as Mexico and the Central American countries, are all rapidly approximating a uniform coinage, which the needs of commerce will unquestionably soon harmonize with that of the United States. Curiously enough, the great force that is assimilating the alien branches of the human race is not Christianity but trade.

A History of the Panic of 1857.—The cause of the panic of 1857 was mainly the rage for land speculation which had run through the country like an epidemic. Paper cities abounded, unproductive railroads were opened, and to help forward these projects, irresponsible banks were started, or good banks found themselves drawn into an excessive issue of notes. Every one was anxious to invest in real estate and become rich by an advance in prices. Capital was attracted into this speculation by the prospect of large gains, and so great was the demand for money that there was a remarkable advance in the rates of interest. In the West, where the speculative fever was at its highest, the common rates of interest were from 2 to 5 per cent. a month. Everything was apparently in the most prosperous condition, real estate going up steadily, the demand for money constant, and its manufacture by the banks progressing successfully, when the failure of the "Ohio Life and Trust Company," came, August 24, 1857, like a thunderbolt from a clear sky. This was followed by the portentous mutterings of a terrible coming storm. One by one small banks in Illinois, Ohio, and everywhere throughout the West and South went down. September 25–26 the banks of Philadelphia suspended payment, and thus wrecked hundreds of banks in Pennsylvania, Maryland and adjoining States. October 13–14, after a terrible run on them by thousands of depositors, the banks of New York suspended payment. October 14 all the banks of Massachusetts went down, followed by a general wreckage of credit throughout New England. The distress which followed these calamities was very great, tens of thousands of workmen being unemployed for months. The New York banks resumed payment again December 12, and were soon followed by the banks in other cities. The darkest period of the crisis now seemed past, although there was much heartrending suffering among the poor during the winter which followed. The commercial reports for the year 1857 showed 5,123 commercial failures, with liabilities amounting to $291,750,000.

The History of Plymouth Rock.—A flat rock near the vicinity of New Plymouth is said to have been the one on which the great body of the Pilgrims landed from the Mayflower. The many members of the colony, who died in the winter of 1620–21, were buried near this rock. About 1738 it was proposed to build a wharf along the shore there. At this time there lived in New Plymouth an old man over 90 years of age named Thomas Faunce, who had known some of the Mayflower's passengers when a lad, and by them had been shown the rock on which they had landed. On hearing that it was to be covered with a wharf the old man wept, and it has been said that his tears probably saved Plymouth Rock from oblivion. After the Revolution it was found that the rock was quite hidden by the sand washed upon it by the sea. The sand was cleared away, but in attempting to take up the rock it was split in two. The upper half was taken to the village and placed in the town square. In 1834 it was removed to a position in front of Pilgrim Hall and enclosed in an iron railing. In September, 1880, this half of the stone was taken back to the shore and reunited to the other portion. A handsome archway was then built over the rock, to protect it in part from the depredations of relic hunters.

Grant's Tour Around the World.—General Grant embarked on a steamer at the Philadelphia wharf for his tour around the world May 17, 1877. He arrived at Queenstown, Ireland, May 27. Thence he went to Liverpool, Manchester, and on to London. He remained in that city several weeks, and was made the recipient of the most brilliant social honors. July 5th he went to Belgium, and thence made a tour through Germany and Switzerland. He then visited Denmark, and August 25 returned to Great Britain, and until October spent the time in visiting the various cities of Scotland and England. October 24th he started for Paris, where he remained a month, then went on to Lyons, thence to Naples, and subsequently with several friends he made a trip on the Mediterranean, visiting the islands of Sicily, Malta and others. Thence going to Egypt, the pyramids and other points of note were visited, and a journey made up the Nile as far as the first cataract. The programme of travel next included a visit to Turkey and the Holy Land, whence, in March, the party came back to Italy through Greece, revisited Naples, went to Turin and back to Paris. After a few weeks spent in the social gayeties of that city, the Netherlands was chosen as the next locality of interest, and The Hague, Rotterdam, and Amsterdam were visited in turn. June 26, 1878, the General and his party arrived in Berlin. After staying there some weeks they went to Christiana and Stockholm, then to St. Petersburg, Moscow and Warsaw, and back over German soil to Vienna. Another trip was now made through Switzerland, and, then returning to Paris, a start was made for a journey through Spain and Portugal, in which Victoria, Madrid, Lisbon, Seville and other important towns were visited. A trip was also made from Cadiz to Gibraltar by steamer. After another brief visit to Paris, General Grant went to Ireland, arriving at Dublin January 3, 1879; visited several points of interest in that country, then, by way of London and Paris, went to Marseilles, whence he set sail by way of the Mediterranean Sea and the Suez Canal for India. He reached Bombay February 13th. Thence visited Allahabad, Agra and rode on an elephant to Amber; also went to Benares, Delhi, Calcutta and Rangoon, spent a week in Siam, then went by steamer to China. After spending some time at Canton, Pekin and other places he went to Japan for a brief visit. He went to Nagasaki, Tokio and Yokahama, and at last, September 3, 1879, set sail from Tokio on his return to the United States. September 20th he arrived in the harbor of San Francisco. After some weeks spent in visiting the points of interest in California and Oregon he returned to his home in the Eastern States.

History of Vassar College.—Vassar College is on the east bank of the Hudson, near Poughkeepsie, N. Y. It was founded in 1861. In that year Matthew Vassar, a wealthy

brewer of Poughkeepsie, gave to an incorporated board of trustees the sum of $408,000 and 200 acres of land for the endowment of a college for women. The building was constructed from plans approved by him, at a cost of about $200,000. The college was opened in September, 1865, with eight professors and twenty other instructors, and 300 students. The first president of the college was Professor Milo P. Jewett; the second Dr. John H. Raymond; the third, the Rev. Samuel Caldwell. The college has a fine library, with scientific apparatus and a museum of natural history specimens.

THE ORIGIN OF CHESS.—So ancient is chess, the most purely intellectual of games, that its origin is wrapped in mystery. The Hindoos say that it was the invention of an astronomer, who lived more than 5,000 years ago, and was possessed of supernatural knowledge and acuteness. Greek historians assert that the game was invented by Palamedes to beguile the tedium of the siege of Troy. The Arab legend is that it was devised for the instruction of a young despot by his father, a learned Brahmin, to teach the youth that a king, no matter how powerful, was dependent upon his subjects for safety. The probability is that the game was the invention of some military genius for the purpose of illustrating the art of war. There is no doubt that it originated in India, for a game called by the Sanscrit name of Cheturanga—which in most essential points strongly resembles modern chess, and was unquestionably the parent of the latter game—is mentioned in Oriental literature as in use fully 2,000 years before the Christian area. In its gradual diffusion over the world the game has undergone many modifications and changes, but marked resemblances to the early Indian game are still to be found in it. From India, chess spread into Persia, and thence into Arabia, and the Arabs took it to Spain and the rest of Western Europe.

THE DARK AGES.—The Dark Ages is a name often applied by historians to the Middle Ages, a term comprising about 1,000 years, from the fall of the Roman Empire in the fifth century to the invention of printing in the fifteenth. The period is called "dark" because of the generally depraved state of European society at this time, the subserviency of men's minds to priestly domination, and the general indifference to learning. The admirable civilization that Rome had developed and fostered, was swept out of existence by the barbarous invaders from Northern Europe, and there is no doubt that the first half of the medieval era, at least, from the year 500 to 1000, was one of the most brutal and ruffianly epochs in history. The principal characteristics of the middle ages were the feudal system and the papal power. By the first the common people were ground into a condition of almost hopeless slavery, by the second the evolution of just and equitable governments by the ruling classes was rendered impossible through the intrusion of the pontifical authority into civil affairs. Learning did not wholly perish, but it betook itself to the seclusion of the cloisters. The monasteries were the resort of many earnest scholars, and there were prepared the writings of historians, metaphysicians and theologians. But during this time man lived, as the historian Symonds says, "enveloped in a cowl." The study of nature was not only ignored but barred, save only as it ministered in the forms of alchemy and astrology to the one cardinal medieval virtue—credulity. Still the period saw many great characters and events fraught with the greatest importance to the advancement of the race.

THE GREATEST DEPTH OF THE OCEAN EVER MEASURED.—The deepest verified soundings are those made in the Atlantic Ocean, ninety miles off the island of St. Thomas, in the West Indies, 3,875 fathoms, or 23,250 feet. Deeper water has been reported south of the Grand Bank of Newfoundland, over 27,000 feet in depth, but additional soundings in that locality did not corroborate this. Some years ago, it was claimed that very deep soundings, from 45,000 to 48,000 feet, had been found off the coast of South America, but this report was altogether discredited on additional investigation in these localities. The ship Challenger, which in 1872–74 made a voyage round the globe for the express purpose of taking deep sea soundings in all the oceans, found the greatest depth touched in the Pacific Ocean less than 3,000 fathoms, and the lowest in the Atlantic 3,875 fathoms, as given above.

THE ARMY OF THE REVOLUTION.—It is not positively known how many men from the colonies served in the war. The official tabular statement indicates a total of recorded years of enlistment and not a total of the men who served. Hence, a man who served from April 19, 1775, until the formal cessation of hostilities, April 19, 1783, counted as eight men in the aggregate. In this basis of enlisted years, the following table gives the contributions of the various States: New Hampshire, 12,497; Massachusetts, 69,907; Rhode Island, 5,908; Connecticut, 31,939; New York, 17,781; New Jersey, 10,726; Pennsylvania, 25,-678; Delaware, 2,386; Maryland, 13,912; Virginia,26,-678; North Carolina, 7,263; South Carolina, 6,417; Georgia, 2,679; Total, 233,771.

THE WORLD'S DECISIVE BATTLES.—The fifteen decisive battles of the world from the fifth century before Christ to the beginning of the nineteenth century of the present era, are as follows:

The battle of Marathon, in which the Persian hosts were defeated by the Greeks under Miltiades, B. C. 490.

The defeat of the Athenians at Syracuse, B. C. 413.

The battle of Arbela, in which the Persians under Darius were defeated by the invading Greeks under Alexander the Great, B. C. 331.

The battle of the Metaurus, in which the Carthaginian forces under Hasdrubal were overthrown by the Romans, B. C. 207.

Victory of the German tribes under Arminius over the Roman legions under Varus, A. D. 9. (The battle was fought in what is now the province of Lippe, Germany, near the source of the river Ems.)

Battle of Chalons, where Attila, the terrible King of the Huns, was repulsed by the Romans under Aetius, A. D. 451.

Battle of Tours, in which the Saracen Turks invading Western Europe were utterly overthrown by the Franks under Charles Martel, A. D. 732.

Battle of Hastings, by which William the Conqueror became the ruler of England, Oct. 14, 1066.

Victory of the French under Joan of Arc over the English at Orleans, April 29, 1429.

Defeat of the Spanish Armada by the English naval force, July 29 and 30, 1588.

Battle of Blenheim, in which the French and Bavarians were defeated by the allied armies of Great Britain and Holland under the Duke of Marlborough, Aug. 2, 1704.

Battle of Pultowa, the Swedish army under Charles XII, defeated by the Russians under Peter the Great, July 8, 1709.

Victory of the American army under General Gates over the British under General Burgoyne at Saratoga, Oct. 17, 1777.

Battle of Valmy, where the allied armies of Prussia and Austria were defeated by the French under Marshal Kellerman, Sept. 20, 1792.

Battle of Waterloo, the allied forces of the British and Prussians defeated the French under Napoleon, the final overthrow of the great commander, June 18, 1815.

These battles are selected as decisive, because of the important consequences that followed them. Few students of history, probably, would agree with Prof. Creasy, in restricting the list as he does. Many other conflicts might be noted, fraught with great importance to the human race, and unquestionably "decisive" in their nature; as, for instance, the victory of Sobieski over the Turkish army at Vienna, Sept. 12, 1683. Had the Poles and Austrians been defeated there, the Turkish general might readily have fulfilled his threat "to stable his horses in the Church of St. Peter's at Rome," and all Western Europe would, no doubt, have been devastated by the ruthless and bloodthirsty Ottomans. Of important and decisive battles since that of Waterloo we may mention in our own Civil War those of Gettysburg, by which the invasion of the North was checked, and at Chattanooga, Nov. 23 and 25, 1863, by which the power of the Confederates in the southwest received a deadly blow.

The Wandering Jew.—There are various versions of the story of "The Wandering Jew," the legends of whom have formed the foundation of numerous romances, poems and tragedies. One version is that this person was a servant in the house of Pilate, and gave the Master a blow as He was being dragged out of the palace to go to His death. A popular tradition makes the wanderer a member of the tribe of Naphtali, who, some seven or eight years previous to the birth of the Christ-child left his father to go with the wise men of the East whom the star led to the lowly cot in Bethlehem. It runs, also, that the cause of the killing of the children can be traced to the stories this person related when he returned to Jerusalem of the visit of the wise men, and the presentation of the gifts they brought to the Divine Infant, when He was aoknowledged by them to be the king of the Jews. He was lost sight of for a time, when he appeared as a carpenter who was employed in making the cross on which the Saviour was to be lifted up into the eyes of all men. As Christ walked up the way to Calvary, He had to pass the workshop of this man, and when He reached its door, the soldiers, touched by the sufferings of the Man of Sorrows, besought the carpenter to allow Him to rest there for a little, but he refused, adding insult to a want of charity. Then it is said that Christ pronounced his doom, which was to wander over the earth until the second coming. Since that sentence was uttered, he has wandered, courting death, but finding it not, and his punishment becoming more unbearable as the generations come and go. He is said to have appeared in the sixteenth, seventeenth, and even as recently as the eighteenth century, under the names of Cartaphilus, and Ahasuerus, by which the Wandering Jew has been known. One of the legends described him as a shoemaker of Jerusalem, at whose door Christ desired to rest on the road to Calvary, but the man refused, and the sentence to wander was pronounced.

Some Memorable Dark Days.—During the last hundred years there have been an unusually large number of dark days recorded. As has been suggested by several writers, this may have been the result of the careful scientific observations of modern times, as well as of the frequency of these phenomena. The dark day in the beginning of this century about which so much has been said and written occurred Oct. 21, 1816. The first day of the same month and year is also represented as "a close dark day." Mr. Thomas Robie, who took observations at Cambridge, Mass., has this to offer in regard to the phenomenon: "On Oct. 21 the day was so dark that people were forced to light candles to eat their dinners by; which could not be from an eclipse, the solar eclipse being the fourth of that month." The day is referred to by another writer as "a remarkable dark day in New England and New York," and it is noted, quaintly by a third, that "in October, 1816, a dark day occurred after a severe winter in New England." Nov. 26, 1816, was a dark day in London, and is described "in the neighborhood of Walworth and Camberwell so completely dark that some of the coachmen driving stages were obliged to get down and lead their horses with a lantern." The famous dark day in America was May 19, 1780. The phenomenon began about 10 o'clock in the forenoon. The darkness increased rapidly, and "in many places it was impossible to read ordinary print." There was widespread fear. Many thought that the Day of Judgment was at hand. At that time the Legislature of Connecticut was in session at Hartford. The House of Representatives, being unable to transact their business, adjourned. A proposal to adjourn the council was under consideration. When the opinion of Colonel Davenport was asked, he answered: "I am against an adjournment. The day of judgment is approaching or it is not. If it is not, there is no cause for adjournment; if it is, I choose to be found doing my duty. I wish, therefore, that candles may be brought." In Whittier's "Tent on the Beach" is given a beautiful poetical version of this anecdote. It is suggested by several authorities that the cause of the dark day in 1780 should be attributed simply to the presence of ordinary clouds of very unusual volume and density. These instances are, of course, grouped with phenonena of which not a great deal is known, and can in no way be classed with those occurrances occasioned by the smoke from extensive forest fires, volcanic eruptions, or fogs.

The Remarkable Story of Charlie Ross.—Charlie Ross was the son of Christian K. Ross of Germantown, Pa., and at the time of his disappearance was a little over 4 years of age. The child and a brother 6 years old were playing July 1, 1874, in the streets of Germantown, when a couple of men drove up in a buggy and persuaded the children, with promises of toys and candies, to get in and ride with them in the vehicle. After driving around the place for a little time, the older brother, Walter Ross, was put out of the conveyance, and the strangers gave him 25 cents, telling him to go to a store near at hand and buy some candy and torpedoes for himself and Charlie. Walter did as he was told, but when he came out of the store the men with Charlie and the vehicle had disappeared. It was believed at first by the relatives and friends of the missing boy that he would be returned in a short time, as they supposed he might have been taken by some drunken men. Time passed, however, but no trace of the child had been discovered. In a few weeks a letter was received by Mr. Ross to the effect that if he would pay $20,000 his son would be returned, but that the parent need not search for Charlie, as all efforts to find the abducted boy or his captors would only be attended with failure; and it was stated that if this amount was not paid, Charlie would be killed. The father answered this and a long correspondence ensued, while the search was prosecuted in all directions. Mr. Ross wanted the child delivered at the time the money was paid, but to this the abductors refused to agree. It is stated that more than $50,000 were expended to recover the child. At one time two gentlemen were two days in Fifth Avenue Hotel, New York, with the $20,000 ransom money to be given to the child-thieves, but they did not appear. The search was continued, and the officers of the law were looking up any and all evidence, until they had located the two men. These were found Dec. 4, 1874, committing a burglary in the house of Judge Van Brunt, Bay Ridge, L. I.; the burglary was discovered, the burglars seen, and shot by persons residing in an adjoining residence. One of the men was killed instantly, the

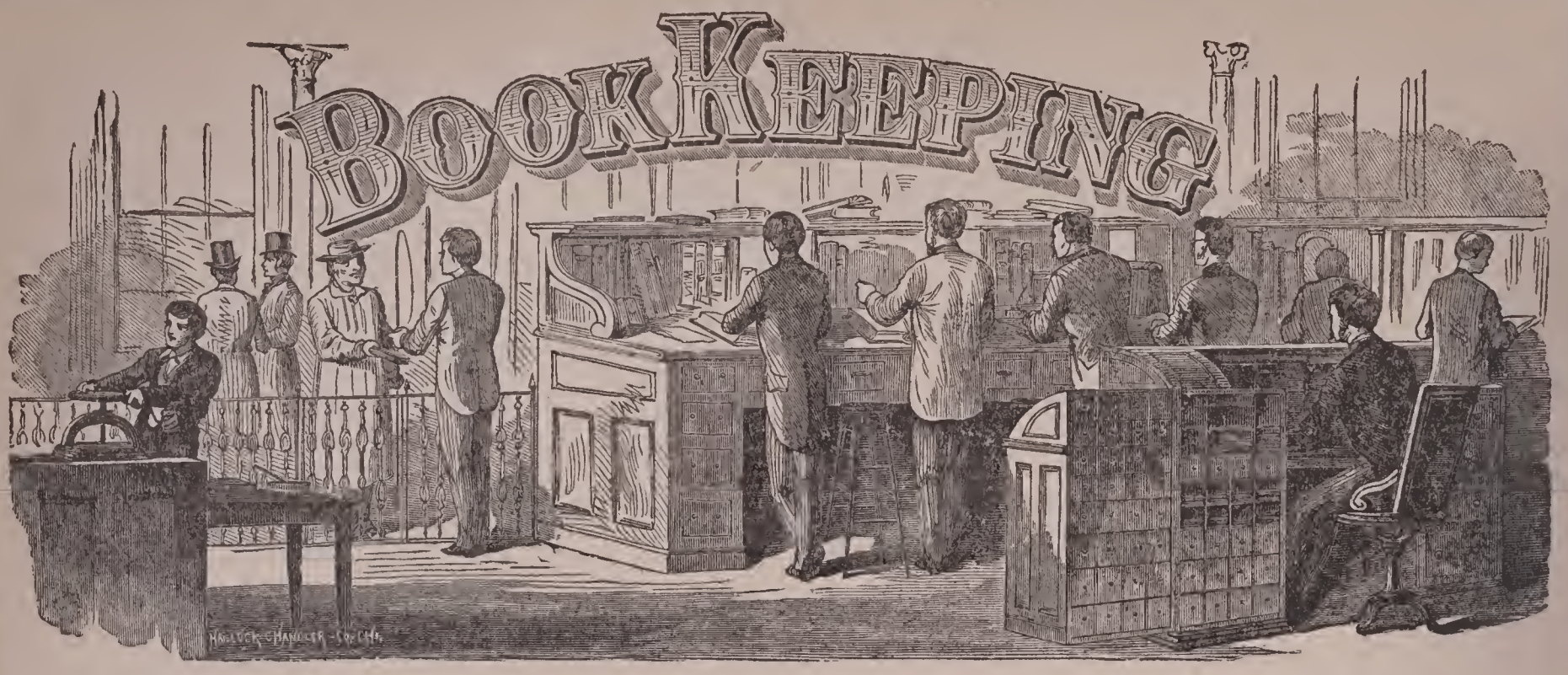
other lived several hours, and confessed that he and his companion had abducted Charlie Ross, but that the dead thief, Mosher by name, was the one who knew where the boy was secreted. Walter Ross identified the burglars as the men who had enticed him and Charlie into the buggy. There the case rested. No new fact has been developed. The missing child has never been found. Many times have children been reported who resembled Charlie, and Mr. Ross has traveled far and near in his endless search, only to return sadly and report that his boy was still missing. No case in recent years has excited such universal sympathy as that of Charlie Ross.

THE BLUE LAWS ON SMOKING.—There were some very stringent laws in Massachusetts against the use of tobacco in public, and while the penalties were not so heavy, yet they were apparently rigidly enforced for a time. We quote from a law passed in October, 1632, as follows: "It is ordered that noe person shall take any tobacco publiquely, under paine of punishment; also that every one shall pay 1*d.* for every time hee is convicted of takeing tobacco in any place, and that any Assistant shall have power to receave evidence and give order for levyeing of it, as also to give order for the levyeing of the officer's charge. This order to begin the 10th of November next." In September, 1634, we discover another law on the same article: "Victualers, or keepers of an Ordinary, shall not suffer any tobacco to be taken in their howses, under the penalty of 5*s.* for every offence, to be payde by the victuler, and 12*d.* by the party that takes it. Further, it is ordered, that noe person shall take tobacco publiquely, under the penalty of 2*s.* 6*d.*, nor privately, in his owne house, or in the howse of another, before strangers, and that two or more shall not take it togeather, anywhere, under the aforesaid penalty for every offence." In November, 1637, the record runs: "All former laws against tobacco are repealed, and tobacco is sett at liberty;" but in September, 1638, "the [General] Court, finding that since the repealing of the former laws against tobacco, the same is more abused then before, it hath therefore ordered, that no man shall take any tobacco in the fields, except in his journey, or at meale times, under paine of 12*d.* for every offence; nor shall take any tobacco in (or so near) any dwelling house, barne, corne or hay rick, as may likely indanger the fireing thereof, upon paine of 10*s.* for every offence; nor shall take any tobacco in any inne or common victualing house, except in a private roome there, so as neither the master of the same house nor any other guests there shall take offence thereat, which if they do, then such person is fourthwith to forbeare, upon paine of 12*s.* 6*d.* for every offence. Noe man shall kindle fyre by gunpowder, for takeing tobacco, except in his journey, upon paine of 12*d.* for every offence."

THE REMARKABLE CAVES—WYANDOTTE AND MAMMOTH.—Wyandotte Cave is in Jennings township, Crawford county, Ind., near the Ohio river. It is a rival of the great Mammoth Cave in grandeur and extent. Explorations have been made for many miles. It excels the Mammoth Cave in the number and variety of its stalagmites and stalactites, and in the size of several of its chambers. One of these chambers is 350 feet in length, 245 feet in height, and contains a hill 175 feet high, on which are three fine stalagmites. Epsom salts, niter and alum have been obtained from the earth of the cave. The Mammoth Cave is in Edmondson county, near Green River, about seventy-five miles from Louisville. Its entrance is reached by passing down a wild, rocky ravine through a dense forest. The cave extends some nine miles. To visit the portions already traversed, it is said, requires 150 to 200 miles of travel. The cave contains a succession of wonderful avenues, chambers, domes, abysses, grottoes, lakes, rivers, cataracts and other marvels, which are too well known to need more than a reference. One chamber—the Star—is about 500 feet long, 70 feet wide, 70 feet high, the ceiling of which is composed of black gypsum, and is studded with innumerable white points, that by a dim light resemble stars, hence the name of the chamber. There are avenues one and a half and even two miles in length, some of which are incrusted with beautiful formations, and present the appearance of enchanted palace halls. There is a natural tunnel about three-quarters of a mile long, 100 feet wide, covered with a ceiling of smooth rock 45 feet high. There is a chamber having an area of from four to five acres, and there are domes 200 and 300 feet high. Echo River is some three-fourths of a mile in length, 200 feet in width at some points, and from 10 to 30 in depth, and runs beneath an arched ceiling of smooth rock about 15 feet high, while the Styx, another river, is 450 feet long, from 15 to 40 feet wide, and from 30 to 40 feet deep, and is spanned by a natural bridge. Lake Lethe has about the same length and width as the river Styx, varies in depth from 3 to 40 feet, lies beneath a ceiling some 90 feet above its surface, and sometimes rises to a height of 60 feet. There is also a Dead Sea, quite a somber body of water. There are several interesting caves in the neighborhood, one three miles long and three each about a mile in length.

THE SOUTH SEA BUBBLE.—The "South Sea Bubble," as it is generally called, was a financial scheme which occupied the attention of prominent politicians, communities, and even nations in the early part of the eighteenth century. Briefly the facts are: In 1711 Robert Hartley, Earl of Oxford, then Lord Treasurer, proposed to fund a floating debt of about £10,000,000 sterling, the interest, about $600,000, to be secured by rendering permanent the duties upon wines, tobacco, wrought silks, etc. Purchasers of this fund were to become also shareholders in the "South Sea Company," a corporation to have the monopoly of the trade with Spanish South America, a part of the capital stock of which was to be the new fund. But Spain, after the treaty of Utrecht, refused to open her commerce to England, and the privileges of the "South Sea Company" became worthless. There were many men of wealth who were stockholders, and the company continued to flourish, while the ill success of its trading operations was concealed. Even the Spanish War of 1718 did not shake the popular confidence. Then in April, 1720, Parliament, by large majorities in both Houses, accepted the company's plan for paying the national debt, and after that a frenzy of speculation seized the nation, and the stock rose to £300 a share, and by August had reached £1,000 a share. Then Sir John Blunt, one of the leaders, sold out, others followed, and the stock began to fall. By the close of September the company stopped payment and thousands were beggared. An investigation ordered by Parliament disclosed much fraud and corruption, and many prominent persons were implicated, some of the directors were imprisoned, and all of them were fined to an aggregate amount of £2,000,000 for the benefit of the stockholders. A great part of the valid assets was distributed among them, yielding a dividend of about 33 per cent.

AREA OF NORTH AMERICA.—The following figures show the extent of the United States as compared with the British possessions in North America: United States, 3,602,884 square miles. British possessions — Ontario, 121,260; Quebec, 210,020; Nova Scotia, 18,670; New Brunswick, 27,037; British Columbia, 233,000; Manitoba, 16,000; N. W. and Hudson Bay Territories, 2,206,725; Labrador and Arctic Ocean Islands, make a total of 3,500,000.



GIVING A CONCISE AND COMPREHENSIVE EXPLANATION OF BOTH SINGLE AND DOUBLE ENTRY—NECESSITY AND ADVANTAGES OF A KNOWLEDGE OF BOOK-KEEPING.

The object of book-keeping is to exhibit a distinct and correct state of one's affairs, and to enable companies, firms, and individuals to ascertain at any time the nature and extent of their business, the amount of their profits or available income, or, as the case may be, the extent of their losses.

The necessity for a knowledge of book-keeping is not confined to those engaged in business. There is no class of men who can afford to dispense with it, since all are called upon to handle money and keep accounts of greater or less magnitude. It is not sufficient for a man to say, "I do not understand book-keeping myself, but I can employ a book-keeper who will know everything necessary." Such a man places himself at the mercy of his employé, and is liable to be continually deceived by false entries, fraudulent balances, and in various ways which a skillful and unscrupulous accountant can avail himself of.

It is the merchant's first duty to be thoroughly informed in all branches of his business, so that he may not only direct it, but also be competent to detect and expose error and fraud, and to know at any moment his exact business standing. It is not too much, therefore, to assert that book-keeping should constitute an essential part of the education of every young man and woman. The possession of such knowledge will the more thoroughly prepare them for the great struggle of life, and enable them to earn a fair and honorable livelihood by the employment of their skill.

It is not to be expected that every one can become a first-class book-keeper any more than that every one can become a great artist, but it is possible for all to obtain such a knowledge of the essential principles of book-keeping as will enable them to keep an ordinary set of books accurately, and with credit to themselves.

To those engaged in trade or commercial pursuits, or who expect to enter upon them, book-keeping is absolutely necessary, as by it all transactions should be regulated and their results exhibited. The more simple the system the better; but care must be taken that the plan adopted is sufficiently comprehensive and explanatory to satisfy not only the person keeping the books, but those who may have occasion to refer to them; for however satisfactory it may be to a merchant to follow a system which is intelligible to himself alone, circumstances might arise to render the inspection of others necessary, and from their inability to follow out the transactions in the books, suspicions would probably be engendered for which there was no real foundation. Hence the necessity for the adoption of certain recognized and approved systems, which, being plain and easily understood, must prove satisfactory to all concerned.

Book-keeping, when conducted on sound principles, is invaluable; it not only shows the general results of a commercial career, but admits of analysis, by which the success or failure, the value or utter worthlessness of its component parts, or each particular transaction, can be easily ascertained. In a word, on the one hand it promotes order, regularity, fair dealing, and honorable enterprise; on the other it defeats dishonesty, and preserves the integrity of man when dealing with his fellows.

THE PROPER SYSTEM TO BE ADOPTED.

The questions to which a satisfactory system gives the merchant ready and conclusive answers are such as relate—1. To the extent to which his capital and credit will entitle him to transact business; 2. To the assurance he has that all his obligations are honestly fulfilled; 3. To the ascertainment of the success or failure of his commercial dealings, and the position of his affairs from time to time.

There are two recognized systems of book-keeping, namely, by "Single Entry" and by "Double Entry." Although the system of "Single Entry" has nearly passed out of use, it will be well to glance at it before passing on to the other and more generally used system of "Double Entry."

THE SYSTEM OF SINGLE ENTRY.

This is a clumsy and awkward way of keeping books, and is used only by the smallest traders. It is little better than the old time plan of keeping accounts on a slate, and erasing them when paid. The system is denoted by the name; transactions being posted singly, or only once in the Ledger. Three books are generally kept—the cash book, day book and ledger, although the first named is not essential, the cash entries being passed through the day book. Its only use is to check the balance of cash in hand.

In the day book are entered daily all the purchases and sales, whether for cash or credit; and all the credit entries are then transferred to accounts opened in the ledger, that is, all goods sold on credit are charged against the customers, and what are purchased are carried to the credit of the parties supplying them. In the same way when

cash is received from a customer for goods sold on credit, it is posted on his account, and the reverse entry is made when a merchant pays for the goods he has bought. Thus it will be seen that only personal accounts are entered in the ledger.

BALANCE SHEET BY SINGLE ENTRY.

To frame a balance sheet or state of affairs on this system, the book-keeper brings down the balances due by customers to the merchant, also his stock of goods as valued by the last inventory taken at current market prices, and the cash he may have in hand, *on the left-hand side of the sheet*, whilst *on the right-hand side of the sheet* he enters the balances still due by him for goods he has purchased, or money lent to him, and the capital, if any, with which he commenced business. The amounts on each side of the sheet are then added and proved, and the difference between the amounts of the two columns is either profit or loss; if profit, the merchant's capital is increased to that extent; if loss, then he is so much the poorer.

SPECIMEN OF A BALANCE SHEET BY SINGLE ENTRY.

The following "Specimen of a Balance Sheet by Single Entry" will make plain the working and ultimate results of the system:

ASSETS.			LIABILITIES.		
To sundry customers for goods sold, per list	$2,500	00	By sundry merchants for goods purchased, per list	$1,000	00
To goods in stock, per inventory and valuation	4,875	85	By capital put into the business	3,000	00
To cash in hand	986	75	Profit on business to date	4,362	60
	$8,362	60		$8,362	60

It will be observed that the assets exceed the liabilities (including capital) by $4,362.60. That sum being profit must be added to the capital; if in the next or following years any loss should emerge, as a matter of course such deficiency must be deducted from the merchant's capital, as he is that much poorer than when he opened the year.

The advantages of single entry are simplicity and easy adaptation to small retail trades, as the ledger contains only outstanding debts due to or by the merchant. The disadvantage is the difficulty of ascertaining the profits or losses on various goods, or on the several departments of a business.

THE SYSTEM OF DOUBLE ENTRY.

It is now universally admitted that the "System of Double Entry" is the best adapted for heavy, responsible, or speculative trades, and for extensive mercantile concerns. As its name implies, it so differs from the system already described, that every transaction must be recorded doubly in the ledger; that is to say, accounts must be opened in that book, to which all entries in the subsidiary books are twice carried—to the *debit* of one account, and the *credit* of another.

The advantage of this system may be briefly stated as follows:

1. Unless the debit balances exactly correspond with the credit balances the books are wrong, and the error must be discovered by comparison.
2. The discovery of such errors is more easily accomplished than in any other system.
3. Accounts can be readily analyzed.
4. The profit, or loss, on individual transactions can be ascertained without difficulty. Against these advantages the writer knows of no single disadvantage that can be pleaded.

Before entering upon an explanation of the system, we must direct the reader's attention to

THE GOLDEN RULE OF DOUBLE ENTRY

which may be concisely stated in six words, viz.: *Every debit must have its credit.*

By bearing this constantly in mind, and applying it to each and all of the details of practical book-keeping, the difficulties of the system will entirely disappear, and its perfect simplicity be apparent.

It is the custom of the best book-keepers to use the following books in recording commercial transactions: The *Cash Book*, the *Day Book*, sometimes called the *Sales Book*, the *Journal*, and the *Ledger*.

The use of the Journal is gradually being abandoned, as it only imposes upon the book-keeper additional labor without any compensating advantages. Many houses dispense with it altogether, and the time is at hand when it will disappear from every well-regulated counting-room. In the following pages, therefore, we shall make no further reference to it, confining ourselves only to what is of practical value to the student of book-keeping, and avoiding everything that may serve to encumber him with useless details.

THE CASH BOOK.

The name of this book indicates the use to which it is put. It is used exclusively for entries of money received and money paid out, and is thus the record of the daily cash transactions of the merchant. Each page of the Cash Book is ruled with two dollar and cent columns. The left-hand page is used for "Cash Debtor," that is, for cash received; and the right hand page is for "Cash Creditor," or for cash paid out. All sums of money received are written on the left hand page with the date of the receipt, the name of the person or source from which the money is received, and the amounts are entered on a line with the names in the *first column* of the page. All sums paid out are entered on the right-hand page with the date of the payment, and the name of the person or purpose by whom or for which the money is paid, and the amounts are entered in the *first column* of the page on the line with the names to which they belong.

In effect, in keeping accounts, "Cash" is treated precisely as if it were a person. It is *debited*, or charged, with all money paid in, and *credited* with all money paid out. For example, let us suppose that John Smith pays the merchant $200. This sum must be placed to the *credit* of John Smith, because he has paid it in. "Cash" has received it, and therefore "Cash" must be charged with it. It is entered on the *debit* side of the "Cash Book" as a charge against "Cash." The entry is made in the name of John Smith, and shows that he has paid that sum to "Cash." Thus this entry is at the same time

a *debit* to "Cash" and a *credit* to John Smith, as it shows that "Cash" has had that much money from John Smith, and that John Smith is creditor of "Cash" to that amount.

Again, we will suppose that Thomas Brown, David Lee and Asa Hart have each paid the merchant $200, making $600 in all. These amounts are received by "Cash," and are entered on the *debit*, or left-hand page, in three separate entries, each with the name of the person paying the money, and the date of the payment. At the end of the month, when the "Cash Book" is posted, these amounts are carried to the ledger to the *credit* of the parties, that is, $200 is credited to each. The aggregate $600 is then posted to the *debit* of "Cash" in the Ledger; and thus the *debit* of $600 to "Cash" balances the three credits of $200 each to Thomas Brown, David Lee and Asa Hart.

The same principle applies to payments made by the merchant. Let us suppose he pays to Martin, Frazier & Co. $500; to Holmes Bros. $600; and to Jenkins & Son $300. Here we have $1,400 paid out. Each of these amounts is entered with the date of payment on the right hand or *credit* side of the "Cash Book." In other words, "Cash" is credited with these sums, because they have been taken from "Cash" and paid to the parties named. In posting the "Cash Book" at the end of the month, these entries are carred to the *debit* of the accounts of the proper persons in the Ledger. Martin Frazier & Co. are *debited* or charged with $500; Holmes Bros. with $600; and Jenkins & Son with $300. These persons have received the above sums, and are therefore properly *debited* or charged with them. The aggregate amount, $1,400, is entered on the Ledger to the *credit* of "Cash," because "Cash" has paid them, and must receive credit for such payments. Thus the single entry of $1,400 to the credit of "Cash," balances the three charges against the persons to whom the sums were paid.

But suppose the merchant receives from Henry Holt the sum of $200; from Richard Jones $300; and from Edward White $300—making $800 received. These sums are entered on the "Cash Book" as *debits* against "Cash"—the entries being at the same time *credits* to the parties making the payment. The merchant pays out the following sums: To Walter Hyde, $100; to Peter Wright, $125; and to Lyle & Co. $100, in all $325 paid out, which is less than the amount he received. These payments are entered on the "Cash Book" to the *credit* of "Cash." and are at the same time separate *debits* or charges against the persons to whom the money is paid. In order to ascertain how much money is on hand after making these payments, the "Cash Book" must be *balanced*. To do this, add the amounts in the *first* column of the *debit* side, and write down the amount, $800, in the *second* column, on a line with the last entry, and also at the bottom of that column. Then add the amounts in the *first* column on the *credit* page, and write the amount, $325, in the *second* column of that page, on a line with the last entry on that page. Then subtract the $325 paid out from the $800 received, doing this on a separate slip of paper. This leaves a remainder of $475, which is the balance of cash in hand. Now write *with red ink* on the credit page, below the last entry on that page, the amount $475, in the *second* column of that page, preceded by the word "Balance." This "balance," added to the amount of payments, will give $800, the amount received and entered on the *debit* page. This amount must be written at the bottom of the *second* column on the *credit* page, and on a line with the bottom figures on the *debit* page. The "Cash Book" is now said to be *balanced*.

The "Cash Book" should be *balanced* every day, in order to ascertain the amount of money on hand at the close of the day's transactions.

The "Cash Book" should be *posted* once a month. That is, the entries in it should be transferred to the Ledger, and entered there each in its proper account. As these transfers are made, the *folio* (or number of the page) of the Ledger to which the entry is posted, should be written in the "Cash Book," in the column ruled for that purpose, which is immediately on the left of the dollars and cents column. This insures accuracy in referring from the "Cash Book" to the Ledger. The "Cash Book" is now said to be *closed*—that is, all the entries for the month have been transferred to their proper places in the Ledger; and the book-keeper is ready to commence the record of the transactions of the next month.

In the example given above, the merchant had a balance of $475 of cash in hand at the end of the month. The reader will naturally ask, "What must be done with this balance?" It must be borne in mind that the book-keeper must treat the cash transactions of each month as a separate account. When the "Cash Book" is *closed* for January, he must begin a *new* cash account for February, and so on through the year. He turns to a new debtor page and opens a new account on the first of the month. In the case under consideration, he carries forward the balance of $475, and enters it *in red ink* in the *second* column of the *debit* page, preceding it with the date (the first of the month) in its proper column, and the word "Balance" in its proper place. This shows that "Cash" has begun the new month with $475 in hand. "Cash" is therefore, properly charged with it.

Now suppose the merchant receives from various persons during the month money to the amount of $525, and pays out to sundry parties money to the amount of $350. The receipts are all entered, each with its proper date and the name of the person making the payment, on the *debit* page of the "Cash Book," the amounts being written in the first dollars and cents column; the sums paid out are entered in the same way on the credit side of the "Cash Book," the amounts being written in the first dollars and cents column of that page.

In closing the "Cash Book" at the end of the second month, the book-keeper must add the amount of the *debits*, which, as we have seen, is $525, and write this aggregate in the *second* column on a line with the last entry in the first column. This will place it under the "balance" of $475 remaining from the first month, which, as we have seen, was written at the top of the second dollars and cents column of the *debit* page. These two amounts are then added, and give a total of $1,000, which must be written at the bottom of the second column. This shows the total amount of the *debits* or charges against "Cash" during the month. The book-keeper now turns to the *credit* page and adds the amounts of the money paid out. The total as we have seen is $350. He writes this amount in the *second* column of the credit page on a line with the last entry of money paid out. He then subtracts the amount of the *credits* from the amount of the *debits*, and finds a remainder of $650, which is the amount left to to the *debit* of "Cash," or the balance of cash in hand at the end of the month. He writes with *with red ink* the amount, $650, preceded by the word "Balance" in the *second* column of the *credit* page under the total of the credits. These two sums are then added and give a total of $1,000, and this amount is written at the bottom of the *second* column of the *credit* page, and balances the $1,000 at the bottom of the *debit* page. The amounts are then transferred to their respective accounts in the Ledger, and the "Cash Book" is closed for the second month. The balance, of $650, is then carried as before to the top of a new *debit* page, and the "Cash

Book is in readiness for the record of the transactions of the third month.

These explanations will show the reader the uses of and the manner of keeping the "Cash Book." We would earnestly recommend him to commence practicing a system of book-keeping, beginning with the "Cash Book." He should obtain a blank book, and rule it himself in order to become familiar with the form of the pages. Each page should be ruled as follows: on the left-hand side rule a column for dates, and on the right-hand side rule a column for the numbers of the Ledger folios to which the entries are to be posted, and on the right of this rule two sets of columns for dollars and cents. The wide space in the middle of the page is used for the names of the persons making payments or to whom payments are made. Now let the reader make the entries in the manner explained in the preceding pages, and he will have a "Cash Book" in proper shape, and will thus familiarize himself with this important branch of book-keeping.

THE PETTY CASH BOOK.

It is the custom of most book-keepers to use what is called a petty cash book. Any blank book ruled with dollars and cents column will answer. The petty cash book is used for expenditures only, and its use saves the book-keeper a great deal of time and labor which would be required were all the minor expenses of an establishment entered in the cash book and transferred separately to their proper accounts in the ledger. The book-keeper enters all the small sums paid out day by day in the petty cash book, such as "Sundry Expenses," "Freights," "Interest," money paid to employes who have no fixed pay-day, "Telegrams," "Porterage," etc. At the end of the week, or month, as his custom may be, he adds these expenditures in the petty cash book, and enters the aggregate amount on the *credit* page of the regular cash book, from which it is posted to the ledger, in the ordinary way. Bear in mind that *the petty cash book is used for entering minor expenditures only, and never for entering money received.*

THE DAY BOOK.

The day book is used for recording the transactions of each day, except those which are made for cash, and which are entered in the cash book. It is frequently called the sales book, as all the sales are entered in it. It is also used to record all purchases of goods made by the merchant, and thus takes the place of a separate book, which was formerly used, and which was known as the purchase book.

The day book is ruled differently from either the cash book or ledger. On the left of the page is a single column, and on the right are three sets of dollars and cents columns. The date is written, day by day, at the top of the page; the column on the left is for the number of the articles sold; the wide space in the middle is for the name of the purchasers and a description of the goods sold to them; the first set of dollars and cents columns is for the entry of the amounts of the sales; and the third set is for the entry of the aggregate amount of the sales to each person. The second, or middle set of dollars and cents columns, is known as the cash column, and in it are entered the aggregates of all bills for which cash is paid when the purchase is made. The use of it greatly simplifies the labor of the book-keeper, and avoids confusion in keeping the accounts. Where this column is used, all bills that are paid before the end of the month are entered in the cash column; all bills that are not paid before the end of the month, or at the time of the purchase, are entered as has been said, in the third column. When the sale is reported to the book-keeper, he must be informed as to the manner of payment, in order that he may know in which column to enter the amount. It is the custom where goods are paid for at the time of the purchase, to make a "check" in red ink in the margin after the amount, and also in the margin before the name. This shows that the book-keeper is not to post these entries in the same manner that the sales on credit are to be posted.

For example, let us suppose John Smith, of Camden, N. J., buys a bill of goods from the merchant to the amount of $100. This sale is entered in the day book under its proper date, with the articles and the number of them. The price of each article is written in the first set of dollars and cents columns. If the sale is for cash, the aggregate or total amount of the bill is written in the second set of dollars and cents columns, and a "check" in red ink is placed opposite the name of John Smith, and another one opposite the aggregate amount. This shows that the sale is for cash. If the sale is on credit—say sixty days' time—the aggregate is written in the third set of dollars and cents columns, and the account is posted in the ledger in the usual way at the end of the month.

POSTING THE DAY BOOK.

The entries in the day book should be posted to the ledger at the end of every week. The various entries of sales on credit are carried to the ledger, and each written there in its proper account, and the number of the ledger folio or page to which the account is carried, is written in red ink in the left-hand margin of the page of the day book, in order that the book-keeper may refer to it promptly. These entries are carried to the *debit* of the accounts in the ledger, as they are charges against the persons to whom the sales are made.

The book-keeper now takes the cash sales entered in the day book. Of course, when cash is paid on the spot for goods, the transaction is complete, and there is no necessity for opening an account with the purchaser in the ledger. To do so would be simply to crowd the ledger with useless accounts. The book-keeper, therefore, adds the amounts in the second or cash column of the day book, and writes the total in the third set of dollars and cents columns. The third column is then added, and the total written at the bottom. This total represents both the cash and the credit sales, and of course, shows the total amount of business done during the month. The various entries having been posted as described to their proper accounts in the ledger, the total of the third column is entered in the *credit* side of the merchandise account of the house in the ledger. "Merchandise" is here treated, like "cash," as a person. It has supplied the goods sold, and is therefore *credited* with them. This entry is also a *debit* against the purchasers for the goods taken out of the house during the month.

Instead of posting the total of the "cash column" as a *debit* from the day book to the ledger, the book-keeper enters it on the *debit* page of the *cash book* as follows: "Sundry sales, day book folio—," and makes a check in red ink in the margin on the left of the entry. Cash having been paid into the concern for these sales, "cash" is properly *debited* for them in the cash book. This total is included in the footing of the *debit* page of the cash book, and is posted from it to the ledger to the *debit* of "cash." Thus the *debit* to "cash" balances the *credit* to "merchandise" in the ledger.

THE MERCHANDISE ACCOUNT.

Merchandise, as we have said, is treated as a *person*. It is *debited* or *charged* with all goods *received* by the house, and *credited* with all goods sold.

It is the custom to devote, every month, one or more pages of the day book, as necessity may require, to a "double entry" headed as follows: "Merchandise debtor to sundries,"—that is, "Merchandise debtor to the follow-

ing." The book-keeper enters under this heading all bills of goods which the house has purchased during the month, and all other items with which it is necessary to *debit* or charge "merchandise" and credit other accounts. Each amount must be written separately in the name of its proper account, and the various entries must be placed one under the other down the page, with the dates written in the margin on the left-hand side of the page. The amounts of the various entries are written in the *first* set of dollars and cents columns, and the total is written *immediately below*. In no case must the entry or entries be extended into the second or third sets of dollars and cents columns. Every transaction is complete, and must be confined to the portions of the page indicated. The amounts of the various entries are then posted to the *credit* of their proper accounts in the ledger, and the *total* of all of them is posted to the *debit* of "merchandise" in the ledger.

The reader is earnestly recommended to rule several pages of a blank book in the manner described, and to practice keeping a day book according to the instructions herein contained. By this it is not meant that he should simply copy or confine himself to the forms given in these pages. He should begin with the cash or day books, open a complete set of books, and keep them as though he were actually engaged in business, extending them as far as possible, and posting them as directed in these instructions. This will give him an amount of practice which will be found very useful, and will enable him to become thoroughly familiar with all the various transactions and requirements of book-keeping.

GENERAL PRINCIPLES.

I. The person or persons investing in the business should be credited, under some title, for all such investments, and also for his or their share of the gains. On the other hand, he or they should be debited for all liabilities assumed by the concern for him or them, for all sums withdrawn by him or them from the business, and for such losses as he or they are entitled to share.

II. Cash account should be debited for all cash receipts, and credited for all disbursements.

III. Merchandise, and all species of property bought upon speculation, should be debited, under some appropriate head, with the cost of the property represented, and credited with its proceeds.

IV. Bill Receivable account should be debited with other people's notes, acceptances and other written obligations, when they become ours, and credited when they are paid, or otherwise disposed of.

V. Bills Payable account should be credited with *our* notes, acceptances or written promises to pay, when they are issued, and debited when they are paid or redeemed.

VI. Personal accounts, such as the names of persons, banks, or other institutions competent to sue or be sued, should be debited under their proper titles when they become indebted to us, or we get out of their debt, and credited when we become indebted to them, or they get out of our debt.

VII. All expenses, of whatever name, should be debited with the outlay, and all causes, of whatever kind, producing us value, should be credited, under some name, for the amount thus produced.

The foregoing principles are all embraced in the following simple Rule.

DEBIT WHAT COSTS THE CONCERN VALUE, AND CREDIT WHAT PRODUCES THE CONCERN VALUE.

TWENTY THOUSAND THINGS WORTH KNOWING.

RELATIVE HARDNESS OF WOODS.

Taking shell bark hickory as the highest standard of our forest trees, and calling that 100, other trees will compare with it for hardness as follows:

Shell Bark Hickory	100	Yellow Oak	60
Pignut Hickory	96	Hard Maple	56
White Oak	84	White Elm	58
White Ash	77	Red Cedar	56
Dogwood	75	Wild Cherry	55
Scrub Oak	73	Yellow Pine	54
White Hazel	72	Chesnut	52
Apple Tree	70	Yellow Poplar	51
Red Oak	69	Buternut	43
White Beech	65	White Birch	43
Black Walnut	65	White Pine	30
Black Birch	62		

Timber intended for posts is rendered almost proof against rot by thorough seasoning, charring and immersion in hot coal tar.

The slide of Alpnach, extending from Mount Pilatus to Lake Lucerne, a distance of 8 miles, is composed of 25,000 trees, stripped of their bark, and laid at an inclination of 10 to 18 degrees. Trees placed in the slide rush from the mountain into the lake in 6 minutes.

The Alps comprise about 180 mountains, from 4,000 to 15,732 feet high, the latter being the height of Mount Blanc, the highest spot in Europe. The summit is a sharp ridge, like the roof of a house, consisting of nearly vertical granite rocks. The ascent requires 2 days, 6 or 8 guides are required, and each guide is paid 100 francs ($20.00). It was ascended by two natives, Jacques Belmat and Dr. Packard, August 8, 1786, at 6 a. m. They staid up 30 minutes, with the thermometer at 14 degrees below the freezing point. The provisions froze in their pockets; their faces were frost-bitten, lips swollen, and their sight much weakened, but they soon recovered on their descent. De Saussure records in his ascent August 2, 1760, that the color of the sky was deep blue; the stars were visible in the shade; the barometer sunk to 16.08 inches (being 27.08 in Geneva) the thermometer was 26½ degrees, in the sun 29 degrees (being 87 degrees at Geneva). The thin air works the blood into a high fever, you feel as if you hardly touched the ground, and you scarcely make yourself heard. A French woman, Mademoiselle d'Angeville, ascended in September, 1840, being dragged up the last 1,200 feet by guides, and crying out: "If I die, carry me to the top." When there, she made them lift her up, that she might boast she had been higher than any man in Europe. The ascent of these awful solitudes is most perilous, owing to the narrow paths, tremendous ravines, icy barriers, precipices, etc. In many places every step has to be cut in the ice, the party being tied to each other by ropes, so that

if one slips he may be held up by the rest, and silence is enforced, lest the noise of talking should dislodge the avalanches of the Aiguille du Midi. The view from the mountain is inexpressibly grand. On the Alps the limit of the vine is an elevation of 1,600 feet; below 1,000 feet, figs, oranges and olives are produced. The limit of the oak is 3,800 feet, of the chesnut 2,800 feet, of the pine 6,500 feet, of heaths and furze to 8,700 and 9,700 feet; and perpetual snow exists at an elevation of 8,200 feet.

On the Andes, in lat. 2 degrees, the limit of perpetual snow is 14,760 feet; in Mexico, lat. 19 degrees, the limit is 13,800 feet; on the peak of Teneriffe, 11,454 feet; on Mount Etna, 9,000 feet; on the Caucasus, 9,900 feet; in the Pyrenees, 8,400 feet; in Lapland, 3,100 feet; in Iceland, 2,890 feet. The walnut ceases to grow at an elevation of 3,600 feet; the yellow pine at 6,200 feet; the ash at 4,800 feet, and the fir at 6,700 feet. The loftiest inhabited spot on the globe is the Port House of Ancomarca, on the Andes, in Peru, 16,000 feet above the level of the sea. The 14th peak of the Himalayas, in Asia, 25,659 feet high, is the loftiest mountain in the world.

Lauterbrunnen is a deep part of an Alpine pass, where the sun hardly shines in winter. It abounds with falls, the most remarkable of which is the Staubbach, which falls over the Balm precipice in a drizzling spray from a height of 925 feet; best viewed in the morning sun or by moonlight. In general, it is like a gauze veil, with rainbows dancing up and down it, and when clouds hide the top of the mountain, it seems as poured out of the sky.

In Canada, the falls of Montmorenci are 250 feet high, the falls of Niagara (the Horse Shoe Falls) are 158 feet high and 2,000 feet wide, the American Falls are 164 feet high and 900 feet wide. The Yosemite Valley Falls are 2,600 feet high, and the Ribbon Falls of the Yosemite are 3,300 feet high. The waterfall of the Arve, in Bavaria, is 2,000 feet.

The Periods of Gestation are the same in the horse and ass or eleven months each, camel 12 months, elephant 2 years, lion 5 months, buffalo 12 months, in the human female 9 months, cow 9 months, sheep 5 months, dog 9 weeks, cat 8 weeks, sow 16 weeks, she wolf from 90 to 95 days. The goose sits 30 days, swans 42, hens 21, ducks 30, peahens and turkeys 28, canaries 14, pigeons 14, parrots 40 days.

Ages of Animals, Etc.—Elephant 100 years and upward, Rhinoceros 20, Camel 100, Lion 25 to 70, Tigers, Leopards, Jaguars and Hyenas (in confinement) about 25 years, Beaver 50, deer 20, wolf 20, Fox 14 to 16, Llamas 15, Chamois 25, Monkeys and Baboons 16 to 18 years, Hare 8, Squirrel 7, Rabbit 7, Swine 25, Stag under 50, Horse 30, Ass 30, Sheep under 10, Cow 20, Ox 30, Swans, Parrots and Ravens 200, Eagle 100, Geese 80, Hens and Pigeons 10 to 16, Hawks 36 to 40, Cranes 24, Blackbird 10 to 12, Peacock 20, Pelican 40 to 50, Thrush 8 to 10, Wren 2 to 3, Nightingale 15, Blackcap 15, Linnet 14 to 23, Goldfinch 20 to 24, Redbreast 10 to 12, Skylark 10 to 30, Titlark 5 to 6, Chaffinch 20 to 24, Starling 10 to 12, Carp 70 to 150, Pike 30 to 40, Salmon 16, Codfish 14 to 17, Eel 10, Crocodile 100, Tortoise 100 to 200, Whale estimated 1,000, Queen Bees live 4 years, Drones 4 months, Working Bees 6 months.

The melody of singing birds ranks as follows: The nightingale first, then the linnet, titlark, sky lark and wood lark. The mocking bird has the greatest powers of imitation, the robin and goldfinch are superior in vigorous notes.

The condor of Peru has spread wings 40 feet, feathers 20 feet, quills 8 inches round.

In England, a quarter of wheat, comprising 8 bushels, yields 14 bushels 2½ pecks, divided into seven distinct kinds of flour, as follows: Fine flour, 5 bushels 3 pecks; bran, 3 bushels; twenty-penny, 3 bushels; seconds, 2 pecks; pollard, 2 bushels; fine middlings, 1 peck; coarse ditto, 1 peck.

The ancient Greek phalanx comprised 8,000 men, forming a square battalion, with spears crossing each other, and shields united.

The Roman legion was composed of 6,000 men, comprising 10 cohorts of 600 men each, with 300 horsemen.

The ancient battering ram was of massive timber, 60 to 100 feet long, fitted with an iron head. It was erected under shelter to protect the 60 or 100 men required to work it. The largest was equal in force to a 36-lb. shot from a cannon.

Pile Driving on Sandy Soils.—The greatest force will not effect a penetration exceeding 15 feet.

Various Sizes of Type.—It requires 205 lines of Diamond type to make 12 inches, of Pearl 178, of Ruby 166, of Nonpareil 143, of Minion 128, of Brevier 112½, of Bourgeois 102½, of Long Primer 89, of Small Pica 83, of Pica 71½, of English 64.

Wire ropes for the transmission of power vary in size from ⅜ to ⅞ inch diam. for from 3 to 300 horse power; to promote flexibility, the rope, made of iron, steel, or copper wire, as may be preferred, is provided with a core of hemp, and the speed is 1 mile per minute, more or less, as desired. The rope should run on a well-balanced, grooved, cast iron wheel, of from 4 to 15 feet diam., according as the transmitted power ranges from 3 to 300 horse; the groove should be well cushioned with soft material, as leather or rubber, for the formation of a durable bed for the rope. With good care the rope will last from 3 to 5 years.

Cannon balls go furthest at an elevation of 30 degrees, and less as the balls are less; the range is furthest when fired from west to east in the direction of the earth's motion, which for the diurnal rotation on its axis, is at the rate of 1,037 miles per hour, and in its orbit, 66,092 miles.

The air's resistance is such that a cannon ball of 3 lbs. weight, diameter, 2.78 ins. moving with a velocity of 1,800 feet per second, is resisted by a force equal to 156 lbs.

Bricklayers ascend ladders with loads of 90 lbs., 1 foot per second. There are 484 bricks in a cubic yard, and 4,356 in a rod.

A power of 250 tons is necessary to start a vessel weighing 3,000 tons over greased slides on a marine railway, when in motion, 150 tons only is required.

A modern dredging machine, 123 ft. long, beam 26 ft., breadth over all, 11 ft., will raise 180 tons of mud and clay per hour, 11 feet from water-line.

In tanning, 4 lbs. of oak bark make 1 lb. of leather.

Flame is quenched in air containing 3 per cent. of carbonic acid; the same percentage is fatal to animal life.

100 parts of oak make nearly 23 of charcoal; beech 21, deal 19, apple 23.7, elm 23, ash 25, birch 24, maple 22.8, willow 18, poplar 20, red pine 22.10, white pine 23. The charcoal used in gunpowder is made from willow, alder, and a few other woods. The charred timber found in the ruins of Herculaneum has undergone no change in 1,800 years.

Four volumes of nitrogen and one of oxygen compose atmospheric air in all localities on the globe.

Air extracted from pure water, under an air pump, contains 34.8 per cent. of oxygen. Fish breathe this air, respiring about 35 times per minute. The oxhydrogen lime light may be seen from mountains at the distance of 200 miles round.

Lightning is reflected 150 to 200 miles.

1,000 cubic feet of 13 candle gas is equivalent to over 7 gals. of sperm oil, 52.9 lbs. of tallow candles, and over 44 lbs. of sperm candles.

The time occupied by gas in traveling from a gas well (in Pennsylvania) through 32 miles of pipe was 22 minutes, pressure at the well was 55 lbs. per inch, pressure at discharge 49 lbs.

At birth, the beats of the pulse are from 165 to 104, and the inspirations of breath from 70 to 23. From 15 to 20, the pulsations are from 90 to 57, the inspirations, from 24 to 16; from 29 to 50, the pulsations are 112 to 56, the inspirations 23 to 11. In usual states it is 4 to 1. The action of the heart distributes 2 ozs. of blood from 70 to 80 times in a minute.

The mean heat of the human body is 98 degs. and of the skin 90 degs. Tea and coffee are usually drank at 110 degs.

The deepest coal mine in England is at Killingworth, near Newcastle, and the mean annual temperature at 400 yards below the surface is 77 degrees, and at 300 yards 70 degrees, while at the surface it is but 48 degrees, being 1 degree of increase for every 15 yards. This explains the origin of hot springs, for at 3,300 yards the heat would be equal to boiling water, taking 20 yards to a degree. The heat of the Bath waters is 116 degrees, hence they would appear to rise 1,320 yards.

Peron relates that at the depth of 2,144 feet in the sea the thermometer falls to 45 degrees, when it is 86 degrees at the surface.

Swemberg and Fourier calculate the temperature of the celestial spaces at 50 degrees centigrade below freezing.

In Northern Siberia the ground is frozen permanently to the depth of 660 feet, and only thaws to the extent of 3 or 4 feet in summer. Below 660 feet internal heat begins.

River water contains about 30 grs. of solid matter in every cubic foot. Fresh water springs of great size abound under the sea. Perhaps the most remarkable springs exist in California, where they are noted for producing sulphuric acid, ink, and other remarkable products.

St. Winifred's Well, in England, evolves 120 tons of water per minute, furnishing abundant water power to drive 11 mills within little more than a mile.

The French removed a red granite column 95 feet high, weighing 210 tons, from Thebes, and carried it to Paris. The display of costly architectural ruins at Thebes is one of the most astonishing to be seen anywhere in the world. The ruins and costly buildings in old Eastern countries, are so vast in their proportions and so many in number that it would require volumes to describe them.

Babel, now called Birs Nimroud, built at Babylon by Belus, was used as an observatory and as a temple of the Sun. It was composed of 8 square towers, one over the other, in all 670 feet high, and the same dimensions on each side on the ground.

The Coliseum at Rome, built by Vespasian for 100,000 spectators, was in its longest diameter 615-5 feet, and in the shortest 510, embraced 5½ acres, and was 120 feet high.

Eight aqueducts supplied ancient Rome with water, delivering 40 millions of cubit feet daily. That of Claudia was 47 miles long and 100 feet high, so as to furnish the hills. Martia was 41 miles, of which 37 were on 7,000 acres 70 feet high. These vast erections would never have been built had the Romans known that water always rises to its own level.

The Temple of Diana, at Ephesus, was 425 feet long and 225 feet broad, with 127 columns, 60 feet high, to support the roof. It was 220 years in building.

Solomon's Temple, built B. C. 1014, was 60 cubits or 107 feet in length, the breadth 20 cubits or 36 feet, and the height 30 cubits or 54 feet. The porch was 36 feet long and 18 feet wide.

The largest one of the Egyptian pyramids is 543 feet high, 693 feet on the sides, and its base covers 11 acres. The layers of stones are 208 in number. Many stones are over 30 feet long, 4 broad and 3 thick.

The Temple of Ypsambul, in Nubia, is enormously massive and cut out of the solid rock. Belzoni found in it 4 immense figures, 65 feet high, 25 feet over the shoulders, with a face of 7 feet and the ears over 3 feet.

Sesostris erected in the temple in Memphis immense statues of himself and his wife, 50 feet high, and of his children, 28 feet.

In the Temple of the Sun, at Baalbec, are stones more than 60 feet long, 24 feet thick and 16 broad, each embracing 23,000 cubic feet, cut, squared, sculptured, and transported from neighboring quarries. Six enormous columns are each 72 feet high, composed of 3 stones 7 feet in diameter. Sesostris is credited with having transported from the mountains of Arabia a rock 32 feet wide and 240 feet long.

The engineering appliances used by the ancients in the movement of these immense masses are but imperfectly understood at the present day.

During modern times, a block of granite weighing 1,217 tons, now used as the pedestal of the equestrian statute of Peter the Great, at St. Petersburg, was transported 4 miles by land over a railway, and 13 miles in a vast caisson by water. The railway consisted of two lines of timber furnished with hard metal grooves; between these grooves were placed spheres of hard brass about 6 inches in diameter. On these spheres the frame with its massive load was easily moved by 60 men, working at capstans with treble purchase blocks.

In 1716 Swedenborg contrived to transport (on rolling machines of his own invention) over valleys and mountains, 2 galleys, 5 large boats and 1 sloop, from Stromstadt to Iderfjol (which divides Sweden from Norway on the South), a distance of 14 miles, by which means Charles XII. was able to carry on his plans, and under cover of the galleys and boats to transport on pontoons his heavy artillery to the very walls of Frederickshall.

Belzoni considered the tract between the first and second cataract of the Nile as the hottest on the globe, owing to there being no rain. The natives do not credit the phenomenon of water falling from above. Hence it is that all monuments are so nicely preserved. Buckingham found a building left unfinished about 4,000 years ago, and the chalk marks on the stones were still perfect.

Pompey's Pillar is 92 feet high, and 27½ round at the base.

Water is the absolute master, former and secondary agent of the power of motion in everything terrestrial. It is the irresistible power which elaborates everything, and the waters contain more organized beings than the land.

Rivers hold in suspension 100th of their volume (more or less) of mud, so that if 36 cubic miles of water (the estimated quantity) flow daily into the sea, 0.36 cubic miles of soil are daily displaced. The Rhine carries to the sea every day 145,980 cubic feet of mud. The Po carries out the land 228 feet per annum, consequently Adria which 2,500 years ago was on the sea, is now over 20 miles from it.

The enormous amount of alluvium deposited by the Mississippi is almost incalculable, and constantly renders necessary extensive engineering operations in order to remove the impediments to navigation.

As an exponent of the laws of friction, it may be stated that a square stone weighing 1,080 lbs. which required a force of 758 lbs. to drag it along the floor of a quarry, roughly chiseled, required only a force of 22 lbs. to move it when mounted on a platform and rollers over a plank floor.

The flight of wild ducks is estimated at 90 miles per hour, that of the swift at 200 miles, carrier pigeons 38 miles, swallows 60 miles, migratory birds have crossed the Mediterranean at a speed of 120 miles per hour.

The Nile has a fall of 6 ins. in 1,000 miles. The rise of the river commences in June, continuing until the middle of August, attaining an elevation of from 24 to 26 feet, and flowing the valley of Egypt 12 miles wide. In 1829 it rose to 26 cubits, by which 30,000 persons were drowned. It is a terrible climate to live in, owing to the festering heat and detestable exhalations from the mud, etc., left on the retiring of the Nile, which adds about 4 inches to the soil in a century, and encroaches on the sea 16 feet every year. Bricks have been found at the depth of 60 feet, showing the vast antiquity of the country. In productiveness of soil it is excelled by no other in the world.

How to Splice a Belt in Order to Make it Run Like an Endless Belt.—Use the toughest yellow glue prepared in the ordinary way, while hot, stirring in thoroughly about 20 per cent of its weight of tannic acid, or extract of tan bark. Apply to the splice and quickly clamp together. The splice should be made of scarfed edges extending 3 to 6 inches back, according to thickness of belt. The surface to be perfectly clean and free from oil.

How Many Pounds of Coal it Requires to Maintain Steam of One-Horse Power per Hour.—Anthracite 1½ to 5 pounds, according to the economy of boiler and engine. Bituminous and anthracite coal are very nearly equal for equal qualities. They both vary from 7 to 10 pounds of water evaporated per pound of coal from a temperature of 212 degrees.

A Formula for Collodio-bromide Emulsion that is Rapid.—Ether s. g. 0.720, 4 fluid ounces; alcohol s. g. 0.820, 2½ fluid ounces; pyroxyline, 40 grains; castile soap dissolved in alcohol, 30 grains; bromide of ammonium and cadmium, 56 grains.

How to Deaden the Noise of Steam While Blowing off Through a Wrought Iron Stand Pipe.—The sound may be much modified by enlarging the end of the pipe like a trumpet or cone; which should be long, 20 or 30 times the diameter of the pipe, opening to 4 or 5 times its initial size.

Why Fusible Plugs are Put in the Crown Sheet of Locomotive Boilers.—To save the crown sheet from burning in case of low water, when the plug melts and lets the steam and water into the fire chamber to dampen and put out the fire as well as to make an alarm. They may also be employed on other forms of boilers, and are much used in connection with whistles for low-water alarms only. Boilers should not be blown out for cleaning with fire under them or while the walls (if set in brick) are hot enough to do damage to the iron shell. Locomotive boilers may be blown out very soon after the fire is entirely removed. All brick-set boilers should be left several hours after the fire is drawn before blowing off for cleaning.

How to Lace a Quarter Turn Belt so as to Have an Equal Strain on Both Edges of the Belt.—Begin on the outside of the belt at the middle, pass one end of the lacing through one end of the belt and bring it out through the corresponding hole of the other end of the belt, laying it diagonally off to the left. Now pass the other end of the lacing through the hole last used, and carry it over the first strand of the lacing on the inside of the belt, passing it through the first hole used, and lay it diagonally off to the right. Now proceed to pass the lacing through the holes of the belt in a zigzag course, leaving all the strands inside the belt parallel with the belt, and all the strands outside the belt oblique. Pass the lace twice through the holes nearest the edge of the belt, then return the lace in the reverse order toward the center of the belt, so as to cross all the oblique strands, and make all the inside strands double. Finally pass the end of the lacing through the first hole used, then outward through an awl hole, then hammering it down to cause it to hold. The left side is to be laced in a similar way.

A Useful Hint to Draughtsmen.—To strain drawing paper on a board, cut the paper to the size required, lay it on the board face downwards and thoroughly wet the surface with a damp sponge or brush, then turn it over and wet the face in the same way; roll it up tightly and let it stay so for five or six minutes, unroll it, and turn up the edges about an inch all around. Take liquid glue (Jackson's is the best) and apply it carefully to the edges, then turn them down, and with a paper knife press them to the board all around. Put the board in an inclined position where it is not too dry or warm, or the paper will dry too fast and tear. If it is allowed to dry slowly the surface will be perfectly even and smooth, and a pleasure to draw upon.

Joints for Hot Water Pipes.—Sal-ammoniac, 2 oz.; sublimed sulphur, 1 oz.; cast-iron filings, 1 lb. Mix in a mortar, and keep the powder dry. When it is to be used, mix it with twenty times its weight of clean iron filings, and grind the whole in a mortar. Wet with water until it becomes of convenient consistence. After a time it becomes as hard and strong as any part of the metal.

When the Process of Galvanizing Iron was First Known.—A. The process of coating iron with zinc, or zinc and tin, is a French invention, and was patented in England in 1837.

A Timber Test.—The soundness of timber may be ascertained by placing the ear close to one end of the log, while another person delivers a succession of smart blows with a hammer or mallet upon the opposite end, when a continuance of the vibrations will indicate to an experienced ear even the degree of soundness. If only a dull thud meets the ear, the listener may be certain that unsoundness exists.

Useful Hints and Recipes.—Following is a comparative statement of the toughness of various woods.—Ash, 100; beech, 85; cedar of Lebanon, 84; larch, 83; sycamore and common walnut, each, 68; occidental plane, 66; oak, hornbeam and Spanish mahogany, each, 62; teak and acacia, each, 58; elm and young chestnut, 52.

An ingenius device for stretching emery cloth for use in the workshop consists of a couple of strips of wood about 14 in. long, hinged longitudinally, and of round, half-round, triangular, or any other shape in cross section. On the inside faces of the wood strips are pointed studs, fitting into holes on the opposite side. The strip of emery cloth is laid on to one set of the studs, and the file, as it is called, closed, which fixes the strip on one side. It is then similarly fixed on the other side, and thus constitutes what is called an emery file and which is a handy and convenient arrangement for workshop use.

Method of making Artificial Whetstones.—Gelatine of good quality is dissolved in its own weight of water, the operation being conducted in a dark room. To the solution one and a half per cent. of bichromate of potash is added, which has previously been dissolved in a little water. A quantity of very fine emery, equal to nine times the weight of the gelatine, is itimately mixed with the gelatine solution. Pulverized flint may be substituted for emery. The mass is molded into any desired shape, and is then consolidated by heavy pressure. It is dried by exposure to strong sunlight for several hours.

How to Toughen Paper.—A plan for rendering paper as tough as wood or leather has been recently introduced; it consists in mixing chloride of zinc with the pulp in the course of manufacture. It has been found that the greater the degree of concentration of the zinc solution, the greater will be the toughness of the paper. It can be used for making boxes and for roofing.

How to Mend a Broken File.—There is no tool so easily broken as the file that the machinist has to work with, and is about the first thing that snaps when a kit of tools gets upset upon the cross-beam of a machine or a tool board from the bed of an engine lathe. It cannot even be passed from one workman to another without being broken, if the file is a new one or still good for anything, if an apprentice has got anything to do with it, and they are never worth mending, however great may be their first cost, unless the plaster of Paris and lime treatment can make a perfect weld without injuring the steel or disturbing the form of the teeth. Steel that is left as hard as a file is very brittle, and soft solder can hold as much on a steady pull if it has a new surface to work from. Take a file, as soon as it is broken, and wet the break with zinc dissolved in muriatic acid, and then tin over with the soldering iron, This must be done immediately as soon as the file is broken, as the break begins to oxydize when exposed to the air. and in an hour or two will gather sufficient to make it impossible for the parts to adhere. Heat the file as warm as it will bear without disturbing its temper as soon as well tinned, and press the two pieces firmly together, squeezing out nearly all the solder, and hold in place until the file cools. This can be done with very little to trim off, and every portion of the break fitting accurately in place. Bring both pieces in line with each other, and, for a file, it is as strong in one place as in another, and is all that could be asked for under the very best of welding treatment.

What will Fasten Pencil Markings, to Prevent Blurring.—Immerse paper containing the markings to be preserved in a bath of clear water, then flow or immerse in milk a moment; hang up to dry. Having often had recourse to this method, in preserving pencil and crayon drawings, I will warrant it a sure cure.

How to Transfer Newspaper Prints to Glass.—First coat the glass with dammar varnish, or else with Canada balsam, mixed with an equal volume of oil of turpentine, and let it dry until it is very sticky, which takes half a day or more. The printed paper to be transferred should be well soaked in soft water, and carefully laid upon the prepared glass, after removing surplus water with blotting paper, and pressed upon it, so that no air bubbles or drops of water are seen underneath. This should dry a whole day before it is touched; then with wetted fingers begin to rub off the paper at the back. If this be skillfully done, almost the whole of the paper can be removed, leaving simply the ink upon the varnish. When the paper has been removed, another coat of varnish will serve to make the whole more transparent. This recipe is sold at from $3 to $5 by itinerants.

A Liquid Cement for Cementing Leather, that Will Not be Affected by the Action of Water.—A good cement for splicing leather is gutta percha dissolved in carbon disulphide, until it is of the thickness of treacle; the parts to be cemented must first be well thinned down, then pour a small quantity of the cement on both ends, spreading it well so as to fill the pores of the leather; warm the parts over a fire for about half a minute, apply them quickly together, and hammer well. The bottle containing the cement should be tightly corked, and kept in a cool place.

The Quickest and Best Way to Drill Holes for Water Pipes in Rough Plate Glass.—Use a hardened (file temper) drill, with spirits of turpentine and camphor to make the drill bite. A broken file in a breast brace will do good work if a power drill is not obtainable.

A Recipe for Making Printers' Inks.—For black ink: Take of balsam of copaiba (pure), 9 ounces; lamp black, 3 ounces; indigo and Prussian blue, of each half an ounce; Indian red, ¾ ounce; yellow soap (dry), 3 ounces; grind the mixture to an impalpable smoothness by means of a stone and muller. Canada balsam may be substituted for balsam of copaiba where the smell of the latter is objectionable, but the ink then dries very quickly. The red inks are similarly made by using such pigments as carmine, lakes, vermilion, chrome yellow, red lead, orange red, Indian red and Venetian red.

A Cement to Stick White Metal Tops on Glass Bottles.—One of the best cap cements consists of resin, 5 ounces; beeswax, 1 ounce; red ocher or Venetian red in powder, 1 ounce. Dry the earth thoroughly on a stove at a temperature above 212° Fah. Melt the wax and resin together, and stir in the powder by degrees. Stir until cold, lest the earthy matter settle to the bottom.

The Correct Meaning of the Tonnage of a Vessel.—The law defines very carefully how the tonnage of different vessels shall be calculated. An approximate rule for finding the gross tonnage is to multiply the length of keel between perpendiculars by the breadth of vessel and depth of hold, all in feet, and dividing the product by 100. It is generally assumed that 40 cubic feet shall constitute a ton, and the tonnage of a vessel is considered to be the multiple of this ton, which most closely corresponds with the internal capacity of the vessel.

A Recipe for Re-inking Purple Type Ribbons.—Use: Aniline violet, ¼ ounce; pure alcohol, 15 ounces; concentrated glycerine, 15 ounces. Dissolve the aniline in the alcohol, and add the glycerine.

The Process of Giving a Tempered-Blue Color to the Steel Plate and Malleable Iron Castings of a Roller Skate.—In order to obtain an even blue, the work must have an even finish, and be made perfectly clean. Arrange a cast-iron pot in a fire so as to heat it to the temperature of melted lead, or just below a red heat. Make a flat bottom basket of wire or wire cloth to sit in the iron box, on which place the work to be blued, as many pieces as you may find you can manage, always putting in pieces of about the same thickness and size, so that they will heat evenly. Make a bail to the basket, so that it can be easily handled. When the desired color is obtained, dip quickly in hot water to stop the progress of the bluing, for an instant only, so that enough heat may be retained to dry the articles. A cover to the iron box may sometimes be used to advantage to hasten the heating. Another way, much used, is to varnish the work with ultramarine varnish, which may be obtained from the varnish makers.

Cement to Mend Iron Pots and Pans.—Take two parts of sulphur and one part, by weight, of fine black lead; put the sulphur in an old iron pan, holding it over the fire until it begins to melt, then add the lead; stir well until all is mixed and melted; then pour out on an iron plate or smooth stone. When cool, break into small pieces. A sufficient quantity of this compound being placed upon the crack of the iron pot to be mended, can be soldered by a hot iron in the same way a tinsmith solders his sheets. If there is a small hole in the pot, drive a copper rivet in it, and then solder over it with this cement.

The Best Method of Rendering Basement Walls Damp-Proof.—Construct on the outside an area wall so that the earth does not rest directly against the main wall of the house, but only against the outside wall or casing of the area. To form such an area, build a wall half or one brick thick parallel to and some 2 or 3 inches from the

main wall, and form at the bottom a channel or gutter connected with the drains, so that any moisture or water finding its way in through the outer casing may be conducted away and will not therefore penetrate into the building. Thoroughly ventilate the areas by means of air bricks or other suitable connections with the outer air, and connect with one another by making through connections underneath the floor joists. Be very careful that the main wall is laid on a good and efficient damp course. The top of the space between the area and main walls may be covered in all around the building with bricks—ornamented or otherwise, as preferred—on a line just above the ground. Another plan of effecting the same object is to dispense with the area wall and in building the brick work to cover the whole of the work on the outside with a thick layer of bituminous asphalt. The plaster on the inside is in this case often rendered in nearly neat Portland cement.

How to Caseharden Large Pieces of Steel.—A box of cast or wrought iron should be provided large enough to hold one or two of the pieces, with sufficient room all around to pack well with the casehardening materials, which may be leather scrap, hoof shavings, or horn shavings, slightly burned and pulverized, which may be mixed with an equal quantity of pulverized charcoal. Pack the pieces to be casehardened in the iron box so as not to touch each other or the box. Put an iron cover on the box and lute with clay. Heat gradually in a furnace to a full red, keep at an even temperature for from 2 to 4 hours, raise the heat to a cherry red during the last hour, then remove the cover and take out the pieces and plunge endwise vertically in water at shop temperature; 2 per cent. of hydrochloric acid in the water improves its tempering qualities and gives the metal an even gray color.

A Good and Cheap Preparation to Put on Friction Matches.—The igniting composition varies with different makers. The following recipes may be taken as fairly representative, the first being the best: 1. Phosphorus by weight, ½ part; potassium chlorate, 4 parts; glue, 2 parts; whiting, 1 part; finely powdered glass, 4 parts; water, 11 parts. 2. Phosphorus by weight, 2 parts; potassium chlorate, 5 parts; glue, 3 parts; red lead, 1½ parts; water, 12 parts. 3. A German mixture for matches. Potassium chlorate, 7.8 parts; lead hyposulphite, 2·6 parts; gum arabic, 1 part.

To Find How Much Tin Vessels Will Hold.—For the contents of cylinders: Square the diameter, and multiply the product by 0.7854. Again, multiply by the height (all in inches). Divide the product by 231 for gallons. For the frustum of a cone: Add together the squares of the diameters of large and small ends; to this add the product of the diameter of the two ends. Multiply this sum by 0.7854. Multiply this product by the height (all in inches). Then divide by 231 for the number of gallons.

A Useful Recipe.—For stopping the joints between slates or shingles, etc., and chimneys, doors, windows, etc., a mixture of stiff white-lead paint, with sand enough to prevent it from running, is very good, especially if protected by a covering of strips of lead or copper, tin, etc., nailed to the mortar joints of the chimneys, after being bent so as to enter said joints, which should be scraped out for an inch in depth, and afterward refilled. Mortar protected in the same way, or even unprotected, is often used for the purpose, but it is not equal to the paint and sand. Mortar a few days old (to allow refractory particles of lime to slack), mixed with blacksmith's cinders and molasses, is much used for this purpose, and becomes very hard and effective.

Test for Hard or Soft Water.—Dissolve a small quantity of good soap in alcohol. Let a few drops fall into a glass of water. If it turns milky, it is hard; if not, it is soft.

Test for Earthy Matters or Alkali in Water.—Take litmus paper dipped in vinegar, and if, on immersion, the paper returns to its true shade, the water does not contain earthy matter or alkali. If a few drops of syrup be added to a water containing an earthy matter, it will turn green.

Test for Carbonic Acid in Water.—Take equal parts of water and clear lime water. If combined or free carbonic acid is present, a precipitate is seen, to which, if a few drops of muriatic acid be added, an effervescence commences.

Test for Magnesia in Water.—Boil the water to a twentieth part of its weight, and then drop a few grains of neutral carbonate of ammonia into a glass of it, and a few drops of phosphate of soda. If magnesia be present, it will fall to the bottom.

Test for Iron in Water.—1. Boil a little nutgall and add to the water. If it turns gray or slate, black iron is present. 2. Dissolve a little prussiate of potash, and, if iron is present, it will turn blue.

Test for Lime in Water.—Into a glass of water put two drops of oxalic acid and blow upon it. If it gets milky, lime is present.

Test for Acid in Water.—Take a piece of litmus paper. If it turns red, there must be acid. If it precipitates on adding lime water, it is carbonic acid. If a blue sugar paper is turned red, it is a mineral acid.

Value of Manufactured Steel.—A pound of very fine steel wire to make watch springs of, is worth about $4; this will make 17,000 springs, worth $7,000.

Horses in Norway have a very sensible way of taking their food, which perhaps might be beneficially followed here. They have a bucket of water put down beside their allowance of hay. It is interesting to see with what relish they take a sip of the one and a mouthful of the other alternately, sometimes only moistening their mouths, as a rational being would do while eating a dinner of such dry food. A broken-winded horse is scarcely ever seen in Norway, and the question is if the mode of feeding has not something to do with the preservation of the animal's respiratory organs.

The Process of Fastening Rubber Rolls on Clothes Wringer.—1. Clean shaft thoroughly between the shoulders or washers, where the rubber goes on. 2. Give the shaft a coat of copal varnish, between the shoulders, and let it dry. 3. Give shaft coat of varnish and wind shaft tightly as possible with five-ply jute twine at once, while varnish is green, and let it dry for about six hours. 4. Give shaft over the twine a coat of rubber cement, and let it dry for about six hours. 5. Give shaft over the twine a second coat of rubber cement, and let it dry for about six hours. 6. Remove washer on the short end of shaft, also the cog-wheel if the shaft has cogs on both ends. 7. See that the rubber rolls are always longer than the space between the washers where the rubber goes on, as they shrink or take up a little in putting on the shaft. 8. Clean out the hole or inside of roll with benzine, using a small brush or swab. 9. Put the thimble or pointer on the end of shaft that the washer has been removed from, and give shaft over the twine and thimble another coat of cement, and stand same upright in a vise. 10. Give the inside or hole of roll a coat of cement with a small rod or stick. 11. Pull or force the roll on the shaft as quickly as possible with a jerk, then rivet the washer on with a cold chisel.

12. Let roll stand and get dry for two or three days before using same. Cement for use should be so thick that it will run freely; if it gets too thick, thin it with benzine or naphtha.

How to Make Effervescing Solution of Citrate of Magnesia.—Dissolve citric acid 400 grains in water 2,000 grains, add carbonate of magnesia 200 grains; stir until dissolved. Filter into a 12-ounce bottle containing syrup of citric acid 1,200 grains. Add boiled and filtered water to fill bottle, drop in bicarbonate of potash in crystals 30 grains and immediately cork. Shake until bicarbonate of potash is dissolved. The syrup of citric acid is made from citric acid 8 parts, water 8 parts, spirit of lemon 4 parts, syrup 980 parts.

A Receipt for Making the Black Cement that is Used for Filling Letters after They are Cut out in Brass.—Mix asphaltum, brown japan and lampblack into a putty-like mass, fill in the spaces, and finally clean the edges with turpentine.

Useful Workshop Hints.—Clean and oil leather belts without taking them off their pulleys. If taken off they will shrink. Then a piece must be put into them and removed again after the belt has run a few days. The decay of stone, either in buildings or monuments, may be arrested by heating and treating with paraffin mixed with a little creosote. A common "paint burner" may be used to heat the stone. Set an engine upon three or four movable points, as upon three cannon balls. Connect with steam, and exhaust by means of rubber hose. If the engine will run up to speed without moving itself back and forth, then that engine will run a long time with little repair. If it shakes itself around the room, then buy another engine. Safely moving a tall mill chimney has been accomplished several times. Chimneys which have been caused to lean slightly through settling of the foundation may be straightened up again by sawing out the mortar between courses of brick at the base. A chimney 100 ft. high and 12 ft. square at the base will be varied over 8 in. at the top by the removal of 1 in. at the base. When you begin to fix up the mill for cold weather, don't forget to put a steam trap in each and every steam pipe which can be opened into the atmosphere for heating purposes. For leading steam joints, mix the red lead or litharge with common commercial glycerine, instead of linseed oil. Put a little carbolic acid in your glue or paste pot. It will keep the contents sweet for a long time. Look well to the bearings of your shafting engine and machines. Sometimes 25, 30, 40 and even 50 per cent. of your power is consumed through lack of good oil. When you buy a water wheel, be sure to buy one small enough to run at full gate while the stream is low during the summer months. If you want more power than the small wheel will give, then put in two or more wheels of various sizes. When it becomes necessary to trim a piece of rubber, it will be found that the knife will cut much more readily if dipped in water. When forging a chisel or other cutting tool, never upset the end of the tool. If necessary cut it off, but don't try to force it back into a good cutting edge. In tubular boilers the handholes should be often opened, and all collections removed from over the fire. When boilers are fed in front, and are blown off through the same pipe, the collection of mud or sediment in the rear end should be often removed. Nearly all smoke may be consumed without special apparatus, by attending with a little common sense to a few simple rules. Suppose we have a battery of boilers, and "soft coal" is the fuel. Go to the first boiler, shut the damper nearly up, and fire up one-half of the furnace, close the door, open damper, and go to the next boiler and repeat the firing. By this method nearly, if not quite, all the smoke will be consumed. A coiled spring inserted between engine and machinery is highly beneficial where extreme regularity of power is required. It is well known that a steam engine, in order to govern itself, must run too fast and too slow in order to close or open its valves; hence an irregularity of power is unavoidable.

A "Paste" Metal Polish for Cleaning and Polishing Brass.—Oxalic acid 1 part, iron peroxide 15 parts, powdered rottenstone 20 parts, palm oil 60 parts, petrolatum 4 parts. See that solids are thoroughly pulverized and sifted, then add and thoroughly incorporate oil and petrolatum.

Cough Candy or Troches.—Tincture of squills 2 ounces, camphorated tincture of opium and tincture of tolu of each ¼ ounce, wine of ipecac ½ ounce, oil of gautheria 4 drops, sassafras 3 drops, and of anise seed oil 2 drops. The above mixture is to be put into 5 pounds of candy which is just ready to take from the fire; continue the boiling a little longer, so as to form into sticks.

How to Oxidize Silver.—For this purpose a pint of sulphide of potassium, made by intimately mixing and heating together 2 parts of thoroughly dried potash and 1 part of sulphur powder, is used. Dissolve 2 to 3 drachms of this compound in 1¾ pints of water, and bring the liquid to a temperature of from 155 degress to 175 degrees Fah., when it is ready for use. Silver objects, previously freed from dust and grease with soda lye and thorough rinsing in water, plunged into this bath are instantly covered with an iridescent film of silver sulphide, which in a few seconds more becomes blue black. The objects are then removed, rinsed off in plenty of fresh water, scratch brushed, and if necessary polished.

Useful Household Recipes.—To purify water in glass vessels and aquariums, it is recommended to add to every 100 grammes of water four drops of a solution of one gramme of salicylic acid in 300 grammes of water. The *Norsk Fiskeritidende*, published at Bergen, Norway, says that thereby the water may be kept fresh for three months without being renewed. A cement recommended as something which can hardly be picked to pieces is made as follows:—Mix equal parts of lime and brown sugar with water, and be sure the lime is thoroughly air-slacked. This mortar is equal to Portland cement, and is of extraordinary strength. For a few weeks' preservation of organic objects in their original form, dimensions and color, Professor Grawitz recommends a mixture composed of two and a half ounces of chloride of sodium, two and three-quarters drachms of saltpetre, and one pint of water, to which is to be added three per cent. of boric acid. To varnish chromos, take equal quantities of linseed oil and oil of turpentine; thicken by exposure to the sun and air until it becomes resinous and half evaporated; then add a portion of melted beeswax. Varnishing pictures should always be performed in fair weather, and out of any current of cold or damp air. A fireproof whitewash can be readily made by adding one part silicate of soda (or potash) to every five parts of whitewash. The addition of a solution of alum to whitewash is recommended as a means to prevent the rubbing off of the wash. A coating of a good glue size made by dissolving half a pound of glue in a gallon of water is employed when the wall is to be papered. The most nourishing steam bath that can be applied to a person who is unable to sweat and can take but little food in the stomach:—Produce the sweating by burning alcohol under a chair in which the person sits, with blanket covering to hold the heat. Use caution and but little alcohol. Fire it in a shallow iron pan or old saucer.

Own Your Own Homes.—Every man, whether he is a working man in the common acceptation of the word or not,

feels a deep interest in the management of the affairs of the city, county and State in which he lives whenever he owns a home. He is more patriotic, and in many ways is a better citizen than the man who simply rents, and who has but little if any assurance of how long it will be before he can be ordered to move; to which may be added in many cases the saving of more money. Of course it requires some economy to lay up a sufficient amount of money to purchase and pay for a home; but this very fact, if properly carried out after the home is acquired, may be the instrument of furnishing the means to commence and prosecute a business upon your own responsibility. True, in some cases it will require more economy, perhaps, than we are now practicing. But the question with every man, and especially if he is the head of a family, is, Can he afford it? That is, can he afford to live up his wages as fast as he earns them, without laying up anything for the future? If he is the head of a family, he is obliged to pay rent, and it does not require very many years of rent paying to make up an amount sufficient to purchase and pay for a comfortable home. You have to pay the rent. This you say you cannot avoid and be honest. Well, you cannot be honest with your family unless you make a reasonable attempt to provide them a home of their own in case anything should happen to you. And the obligation to do this should be as strong as the one to pay rent or provide the other necessaries for the comfort of your family. When you own a home you feel a direct interest in public affairs that otherwise you might consider were of little interest.

A Formula for Nervous Headache.—Alcohol dilut., 4 ounces; Olei cinnamon, 4 minims; Potas. bromid., 5 drachms; Extr. hyoscyam., fl., 1½ drachms; Fiat lotio. One to two teaspoonfuls, if required.

How Beeswax is Refined and Made Nice and Yellow.—Pure white wax is obtained from the ordinary beeswax by exposure to the influence of the sun and weather. The wax is sliced into thin flakes and laid on sacking or coarse cloth, stretched on frames, resting on posts to raise them from the ground. The wax is turned over frequently and occasionally sprinkled with soft water if there be not dew and rain sufficient to moisten it. The wax should be bleached in about four weeks. If, on breaking the flakes, the wax still appears yellow inside, it is necessary to melt it again and flake and expose it a second time, or even oftener, before it becomes thoroughly bleached, the time required being mainly dependent upon the weather. There is a preliminary process by which, it is claimed, much time is saved in the subsequent bleaching; this consists in passing melted wax and steam through long pipes, so as to expose the wax as much as possible to the action of the steam; thence into a pan heated by a steam bath, where it is stirred thoroughly with water and then allowed to settle. The whole operation is repeated a second and third time, and the wax is then in condition to be more readily bleached.

How to Remove a Wart From the Hand.—Take of salicylic acid, 30 grains; ext. cannabis indic., 10 grains; collodion, ½ ounce. Mix and apply.

Recipe for Making Camphor Ice in Small Quantities for Home Use.—Melt together over a water bath white wax and spermaceti, each 1 ounce; camphor, 2 ounces, in sweet almond oil, 1 pound; then triturate until the mixture has become homogeneous, and allow one pound of rosewater to flow in slowly during the operation.

Recipe for Making Instantaneous Ink and Stain Extractor.—Take of chloride of lime 1 pound, thoroughly pulverized, and four quarts soft water. The foregoing must be thoroughly shaken when first put together. It is required to stand twenty-four hours to dissolve the chloride of lime; then strain through a cotton cloth, after which add a teaspoonful of acetic acid to every ounce of the chloride of lime water.

Removing Paint Spots From Wood.—To take spots of paint off wood, lay a thick coating of lime and soda mixed together over it, letting it stay twenty-four hours; then wash off with warm water, and the spot will have disappeared.

Polishing Plate Glass.—To polish plate glass and remove slight scratches, rub the surface gently, first with a clean pad of fine cotton wool, and afterwards with a similar pad covered over with cotton velvet which has been charged with fine rouge. The surface will acquire a polish of great brilliancy, quite free from any scratches.

Recipe for a Good Condition Powder.—Ground ginger 1 pound, antimony sulphide 1 pound, powdered sulphur 1 pound, saltpetre. Mix altogether and administer in a mash, in such quantities as may be required.

Recipe to Make Violet Ink.—Ordinary aniline violet soluble in water, with a little alcohol and glycerine, makes an excellent ink.

Recipe to Make Good Shaving Soap.—Either 66 pounds tallow and 34 pounds cocoanut oil, or 33 pounds of tallow and the same quantity of palm oil and 34 pounds cocoanut oil, treated by the cold process, with 120 pounds caustic soda lye of 27 deg. Baume, will make 214 pounds of shaving soap.

How to Make a Starch Enamel for Stiffening Collars, Cuffs, etc.—Use a little gum arabic thoroughly dissolved in the starch.

A Good Cough Syrup.—Put 1 quart hoarhound to 1 quart water, and boil it down to a pint; add two or three sticks of licorice and a tablespoonful of essence of lemon.

The Cause of the Disease Called "Hives," also Its Cure.—The trouble is caused by a perversion of the digestive functions, accompanied by a disturbance of the circulation. It is not attended with danger, and is of importance only from the annoyance which it causes. Relief may be obtained in most instances by the use of cream tartar daily to such extent as to move the bowels slightly. Make a strong solution, sweeten it pleasantly, and take a teaspoonful, say after each meal, until the effect above mentioned is produced, and continue the treatment until the hives cease to be troublesome.

A Bedbug Poison.—Set in the center of the room a dish containing 4 ounces of brimstone. Light it, and close the room as tight as possible, stopping the keyhole of the door with paper to keep the fumes of the brimstone in the room. Let it remain for three or four hours, then open the windows and air thoroughly. The brimstone will be found to have also bleached the paint, if it was a yellowish white. Mixtures such as equal parts of turpentine and kerosene oil are used; filling up the cracks with hard soap is an excellent remedy. Benzine and gasoline will kill bedbugs as fast as they can reach them. A weak solution of zinc chloride is also said to be an effectual banisher of these pests.

A Preparation by Which You can Take a Natural Flower and Dip It in, That Will Preserve It.—Dip the flowers in melted paraffine, withdrawing them quickly. The liquid should only be just hot enough to maintain its fluidity and the flowers should be dipped one at a time, held by the stalks, and moved about for an instant to get rid of air bubbles. Fresh cut specimens free from moisture make excellent specimens in this way.

What Causes Shaking Asp Leaves to be always in a Quiver?—The wind or vibration of the air only causes the quiver of the aspen leaf.

What "Sozodont" is Composed of.—Potassium carbonate, ½ ounce; honey, 4 ounces; alcohol, 2 ounces; water, 10 ounces; oil of wintergreen and oil of rose, to flavor, sufficient.

What is Used to Measure Cold below 35 Degrees Fahrenheit?—Metallic thermometers are used to measure lowest temperatures, alcohol being quite irregular.

Is the Top Surface of Ice on a Pond, the Amount of Water let in and out being the Same Day by Day, on a Level with the Water Surface or above it?—Ice is slightly elastic, and when fast to the shore the central portion rises and falls with slight variations in water level, the proportion above and below water level being as is the weight of ice to the weight of water it displaces.

Of the Two Waters, Hard and Soft, Which Freezes the Quicker; and in ice Which Saves the Best in Like Packing?—Soft water freezes the quickest and keeps the best.

Does Water in Freezing Purify Itself?—It clears itself from chemicals; does not clear itself from mechanical mixtures as mud and clay.

A Receipt to Remove Freckles from the Face without Injury to the Skin.—A commonly used preparation for this purpose is: Sulpho-carbolate of zinc, 2 parts; distilled glycerine, 25 parts; rose water, 25 parts; scented alcohol, 5 parts. To be applied twice daily for from half an hour to an hour, and then washed off with cold water.

What will Remove Warts Painlessly?—Touch the wart with a little nitrate of silver, or with nitric acid, or with aromatic vinegar. The silver salt will produce a black, and the nitric acid a yellow stain, either of which will wear off in a short while. The vinegar scarcely discolors the skin.

A Good Receipt to Prevent Hair Coming Out.—Scald black tea, 2 ounces, with 1 gallon of boiling water, strain and add 3 ounces glycerine, tincture cantharides ½ ounce, bay rum 1 quart. Mix well and perfume. This is a good preparation for frequent use in its effect both on the scalp and hair, but neither will be kept in good condition without care and attention to general health.

Deaths from Diphtheria per 100,000 Inhabitants in the Chief Cities of the World.—Amsterdam, 265; Berlin, 245; Madrid, 225; Dresden, 184; Warsaw, 167; Philadelphia, 163; Chicago, 146; Turin, 127; St. Petersburg, 121; Bucharest, 118; Berne, 115; Munich, 111; Stockholm, 107; Malines, 105; Antwerp, 104; New York, 91; Paris, 85; Hamburg, 76; Naples, 74; Lisbon, 74; Stuttgart, 61; Rome, 56; Edinburgh, 50; Buda-Pesth, 50; The Hague, 45; Vienna, 44; London, 44; Christiania, 43; Copenhagen, 42; Suburbs of Brussels, 36; City of Brussels, 35.

A Receipt for Marshmallows, as Made by Confectioners.—Dissolve one-half pound of gum arabic in one pint of water, strain, and add one-half pound of fine sugar, and place over the fire, stirring constantly until the syrup is dissolved, and all of the consistency of honey. Add gradually the whites of four eggs well beaten. Stir the mixture until it becomes somewhat thin and does not adhere to the finger. Flavor to taste, and pour into a tin slightly dusted with powdered starch, and when cool divide into small squares.

A Receipt for Making Compressed Yeast.—This yeast is obtained by straining the common yeast in breweries and distilleries until a moist mass is obtained, which is then placed in hair bags, and the rest of the water pressed out until the mass is nearly dry. It is then sewed up in strong linen bags for transportation.

How to Tell the Age of Eggs.—We recommend the following process (which has been known for some time, but has been forgotten) for finding out the age of eggs, and distinguishing those that are fresh from those that are not. This method is based upon the decrease in the density of eggs as they grow old. Dissolve two ounces of kitchen salt in a pint of water. When a fresh-laid egg is placed in this solution it will descend to the bottom of the vessel, while one that has been laid on the day previous will not quite reach the bottom. If the egg be three days old it will swim in the liquid, and if it is more than three days old it will float on the surface, and project above the latter more and more in proportion as it is older.

A Recipe for Making Court Plaster.—Isinglass 125 grains, alcohol 1¾ fluid ounces, glycerine 12 minims, water and tincture of benzoin each sufficient quanity. Dissolve the isinglass in enough water to make the solution weigh four fluid ounces. Spread half of the latter with a brush upon successive layers of taffeta, waiting after each application until the layer is dry. Mix the second half of the isinglass solution with the alcohol and glycerine, and apply in the same manner. Then reverse the taffeta, coat it on the back with tincture of benzoin, and allow it to become perfectly dry. There are many other formulas, but this is official. The above quantities are sufficient to make a piece of court plaster fifteen inches square.

One of the Very Best Scouring Pastes Consists of—Oxalic acid, 1 part; Iron peroxide, 15 parts; Powdered rottenstone, 20 parts; Palm oil, 60 parts; Petrolatum, 4 parts. Pulverize the oxalic acid and add rouge and rottenstone, mixing thoroughly, and sift to remove all grit; then add gradually the palm oil and petrolatum, incorporating thoroughly. Add oil of myrbane, or oil of lavender to suit. By substituting your red ashes from stove coal, an inferior representative of the foregoing paste will be produced.

How to Manufacture Worcestershire Sauce.—A. Mix together 1½ gallons white wine vinegar, 1 gallon walnut catsup, 1 gallon mushroom catsup, ½ gallon Madeira wine, ½ gallon Canton soy, 2½ pounds moist sugar, 19 ounces salt, 3 ounces powdered capsicum, 1½ ounces each of pimento and coriander, 1½ ounces chutney, ¾ ounce each of cloves, mace and cinnamon, and 6½ drachms assafœtida dissolved in pint brandy 20 above proof. Boil 2 pounds hog's liver for twelve hours in 1 gallon of water, adding water as required to keep up the quantity, then mix the boiled liver thoroughly with the water, strain it through a coarse sieve. Add this to the sauce.

A Good Receipt for Making Honey, Without Using Honey as One of the Ingredients,—5 lbs. white sugar, 2 lbs. water, gradually bring to a boil, and skim well. When cool add 1 lb. bees' honey, and 4 drops peppermint, To make of better quality add less water and more real honey.

What the Chemical Composition of Honey is.—Principally of saccharine matter and water, about as follows: Levulose 33½ to 40 per cent., dextrose 31¾ to 39 per cent., water 20 to 30 per cent., besides ash and other minor constituents.

How to Clean Carpets on the Floor to Make Them Look Bright.—To a pailful of water add three pints of oxgall, wash the carpet with this until a lather is produced, which is washed off with clean water.

How to Take Out Varnish Spots from Cloth.—Use chloroform or benzine, and as a last resource spirits of turpentine, followed after drying by benzine.

Flour Paste for all Purposes.—Mix 1 pound rye flour in lukewarm water, to which has been added one teaspoonful of pulverized alum; stir until free of lumps. Boil in the regular way, or slowly pour on boiling water, stirring all the time until the paste becomes stiff. When cold add a full quarter pound of common strained honey, mix well (regular bee honey, no patent mixture).

How to Make Liquid Glue.—Take a wide mouthed bottle, and dissolve in it 8 ounces best glue in ½ pint water, by setting it in a vessel of water, and heating until dissolved. Then add slowly 2½ ounces strong nitric acid 36 deg. Baume, stirring all the while. Effervescence takes place, with generation of fumes. When all the acid has been added, the liquid is allowed to cool. Keep it well corked, and it will be ready for use at any time.

How the World is Weighed and Its Density and Mass Computed.—The density, mass, or weight of the earth was found by the observed force of attraction of a known mass of lead or iron for another mass; or of a mountain by the deflection of a torsion thread or plumb line. In this manner the mean density of the earth has been found to be from 4.71 to 6.56 times the weight of water, 5.66 being accredited as the most reliable. The weight of a cubic foot of water being known, and the contents of the earth being computed in cubic feet, we have but to multiply the number of cubic feet by 5.66 times the weight of 1 cubic foot of water to obtain the weight of the earth in pounds, or units of gravity at its surface, which is the unit usually used. Another method of determining the mean density of the earth is founded on the change of the intensity of gravity in descending deep mines.

A Theory as to the Origin of Petroleum.—Professor Mendelejef has recently advanced the theory that petroleum is of purely mineral origin and that the formation of it is going on every day. He has, moreover, succeeded in producing artificial petroleum by a reaction that he describes, and he states that it is impossible to detect any difference between the natural product and the manufactured article. His theory is as follows: Infilration of water, reaching a certain depth, come into contact with incandescent masses of carburets of metals, chiefly of iron, and are at once decomposed into oxygen and hydrogen. The oxygen unites with the iron, while the hydrogen seizes on the carbon and rises to an upper level, where the vapors are condensed in part into mineral oil, and the rest remains in a state of natural gas. The petroleum strata are generally met with in the vicinity of mountains, and it may be granted that geological upheavals have dislocated the ground in such a way as to permit of the admistoin of water to great depths. If the center of the earth contains great masses of metallic carburets, we may, in case this theory is verified, count upon an almost inexhaustible source of fuel for the day when our coal deposits shall fail us.

How Vaseline is Purified.—The residuum from which vaseline is made is placed in settling tanks heated by steam, in order to keep their contents in a liquid state. After the complete separation of the fine coke it is withdrawn from these tanks and passed through the bone black cylinders, during which process the color is nearly all removed, as well as its empyreumatic odor.

The Latest and Best Process Employed by Cutters and Others in Etching Names and Designs on Steel.—Take copper sulphate, sulphate of alum and sodium chloride, of each 2 drachms, and strong acetic acid 1½ ounces, mixed together. Smear the metal with yellow soap and write with a quill pen without a split.

The History of the Discovery of Circulation of the Blood recapitulated, divides itself naturally into a series of epoch-making periods: 1. The structure and functions of the valves of the heart, Erasistratus, B. C. 304. 2. The arteries carry blood during life, not air, Galen, A. D. 165. 3. The pulmonary circulation, Servetus, 1553. 4. The systemic circulation, Cæsalpinus, 1593. 5. The pulmonic and systemic circulations, Harvey, 1628. 6. The capillaries. Malpighi, 1661.

How to Make Hand Fire Grenades.—Make your hand grenades. Fill ordinary quart wine bottles with a saturated solution of common salt, and place them where they will do the most good in case of need. They will be found nearly as serviceable as the expensive hand grenades you buy. Should a fire break out, throw them with force sufficient to break them into the center of the fire. The salt will form a coating on whatever object the water touches, and make it nearly incombustible, and it will prove effectual in many cases, where a fire is just starting, when the delay in procuring water might be fatal.

How the Kind of White Metal is Made That is Used in the Manufacture of Cheap Table Ware.—How same can be hardened and still retain its color? The following are formulas for white metal. Melt together: (*a*) Tin 82, lead 18, antimony 5, zinc 1, copper 4 parts. (*b*) Brass 32, lead 2, tin 2, zinc 1 part. For a hard metal, not so white, melt together bismuth 6 parts, zinc 3 parts, lead 13 parts. Or use type metal—lead 3 to 7 parts, antimony 1 part.

What Metal Expands Most, for the Same Change in Temperature?—For one degree Centigrade the following are coefficients of linear expansion: aluminum, 0.0000222; silver, 0.0000191 to 0.0000212; nickel, 0.0000128; copper, 0.0000167 to 0.0000178; zinc, 0.0000220 to 0.0000292; brass, 0.0000178 to 0.0000193; platinum, 0.0000088.

Heavy Timbers.—There are sixteen species of trees in America, whose perfectly dry wood will sink in water. The heaviest of these is the black ironwood (confalia feriea) of Southern Florida, which is more than 30 per cent. heavier than water. Of the others, the best known are lignum vitæ (gualacum sanctum) and mangrove (cbizphora mangle). Another is a small oak (quercus gsisea) found in the mountains of Texas, Southern New Mexico and Arizona, and westward to the Colorado desert, at an elevation of 5,000 to 10,000 feet. All the species in which the wood is heavier than water belong to semi-tropical Florida or the arid interior Pacific region.

Highest Point Reached by Man was by balloon 27,000 feet. Travelers have rarely exceeded 20,000 feet, at which point the air from its rarity is very debilitating.

Has a Rate of Speed Equal to Ninety Miles an Hour, ever Been Attained by Railroad Locomotive?—It is extremely doubtful if any locomotive ever made so high a speed. A mile in 48 seconds is the shortest time we have heard of. A rate of 70 to 75 miles per hour has been made on a spurt, on good straight track. The Grant Locomotive Works could make such an engine. Sixty miles an hour for a train is considered a very high rate of speed, and is seldom attained in practice for more than a short run.

The Fastest Boat in the World.—Messrs. Thornycroft & Co., of Chiswick, in making preliminary trials of a torpedo boat built by them for the Spanish navy, have obtained a speed which is worthy of special record. The boat is twin-screw, and the principal dimensions are: Length 147 ft. 6 in., beam 14 ft. 6 in., by 4 ft. 9 in. draught. On a trial at Lower Hope, on April 27, the remarkable mean speed of 26.11 knots was attained, being equal to a speed of 30.06 miles an hour, which is the highest speed yet attained by any vessel afloat.

Staining and Polishing Mahogany.—Your best plan will be to scrape off all the old polish, and well glass paper; then oil with linseed oil both old and new parts. To stain the new pieces, get half an ounce of bichromate of potash, and pour a pint of boiling water over it; when cold bottle it. This, used with care, will stain the new or light parts as dark as you please, if done as follows:—wipe off the oil clean, and apply the solution with a piece of rag, held firmly in the hand, and just moistened with the stain. Great care is required to prevent the stain running over

the old part, for any place touched with it will show the mark through the polish when finished. You can vary the color by giving two or more coats if required. Then repolish your job altogether in the usual way. Should you wish to brighten up the old mahogany, use polish dyed with Bismarck brown as follows:—Get three pennyworth of Bismarck brown, and put it into a bottle with enough naphtha or methylated spirits to dissolve it. Pour a few drops of this into your polish, and you will find that it gives a nice rich red color to the work, but don't dye the polish too much, just tint it.

Value of Eggs for Food and Other Purposes.—Every element that is necessary to the support of man is contained within the limits of an egg shell, in the best proportions and in the most palatable form. Plain boiled, they are wholesome. It is easy to dress them in more than 500 different ways, each method not only economical, but salutary in the highest degree. No honest appetite ever yet rejected an egg in some guise. It is nutriment in the most portable form, and in the most concentrated shape. Whole nations of mankind rarely touch any other animal food. Kings eat them plain as readily as do the humble tradesmen. After the victory of Muhldorf, when the Kaiser Ludwig sat at a meal with his burggrafs and great captains, he determined on a piece of luxury—"one egg to every man, and two to the excellently valiant Schweperman." Far more than fish—for it is watery diet—eggs are the scholar's fare. They contain phosphorus, which is brain food, and sulphur, which performs a variety of functions in the economy. And they are the best of nutriment for children, for, in a compact form, they contain everything that is necessary for the growth of the youthful frame. Eggs are, however, not only food—they are medicine also. The white is the most efficacious of remedies for burns, and the oil extractable from the yolk is regarded by the Russians as an almost miraculous salve for cuts, bruises and scratches. A raw egg, if swallowed in time, will effectually detach a fish bone fastened in the throat, and the white of two eggs will render the deadly corrosive sublimate as harmless as a dose of calomel. They strengthen the consumptive, invigorate the feeble, and render the most susceptible all but proof against jaundice in its more malignant phase. They can also be drunk in the shape of that "egg flip" which sustains the oratorical efforts of modern statesmen. The merits of eggs do not even end here. In France alone the wine clarifiers use more than 80,000,000 a year, and the Alsatians consume fully 38,000,000 in calico printing and for dressing the leather used in making the finest of French kid gloves. Finally, not to mention various other employments for eggs in the arts, they may, of course, almost without trouble on the farmer's part, be converted in fowls, which, in any shape, are profitable to the seller and welcome to the buyer. Even egg shells are valuable, for allopath and homeopath alike agree in regarding them as the purest of carbonate of lime.

History of Big Ships.—In the history of mankind several vessels of extraordinary magnitude have been constructed, all distinctively styled great, and all unfortunately disastrous, with the honorable exception of Noah's Ark. Setting aside this antediluvian craft, concerning the authenticity of whose dimensions authorities differ, and which, if Biblical measures are correct, was inferior in size to the vessel of most importance to modern shipowners, the great galley, constructed by the great engineer Archimedes for the great King Hiero II., of Syracuse, is the first illustration. This ship without a name (for history does not record one) transcended all wonders of ancient maritime construction. It abounded in statues and painting, marble and mosaic work. It contained a gymnasium, baths, a garden, and arbored walks. Its artillery discharged stones of 3 cwt., and arrows 18 ft. in length. An Athenian advertising poet, who wrote a six-line puff of its glories, received the royal reward of six thousand bushels of corn. Literary merit was at a higher premium in the year 240 B.C., than it is to-day. The great ship of antiquity was found to be too large for the accommodation of the Syracusan port, and famine reigning in Egypt, Hiero, the charitably disposed, embarked a cargo of ten thousand huge jars of salted fish, two million pounds of salted meat, twenty thousand bundles of different clothes, filled the hold with corn, and consigned her to the seven mouths of the Nile, and since she weighed anchor nothing more has been heard of her fate. The next great ship worthy of mention is the mythical Saracen encountered in the Mediterranean Sea by the crusading fleet of Richard Cœur de Lion, Duke of Guienne and King of England, which, after much slaughter and damage incident to its infidel habit of vomiting Greek fire upon its adversaries, was captured and sunk. Next in rotation appears the Great Harry, built by Henry VIII., of England, and which careened in harbor during the reign of his successor, under similar circumstances to those attending the Royal George in 1782—a dispensation that mysteriously appears to overhang a majority of the ocean-braving constructions which, in defiance of every religious sailor's superstition that the lumber he treads is naturally female, are christened by a masculine or neutral title. In the year 1769, Mark Isambard Brunel, the Edison of his age, as his son was the Ericsson of that following, permitted himself to be born at Hacqueville; near Rouen, France, went to school, to sea, and into politics; compromised himself in the latter profession, and went to America in 1794, where he surveyed the canal now connecting Lake Champlain with the Hudson River at Albany, N. Y. There he turned architect, then returned to Europe, settled, married, and was knighted in England. He occupied eighteen years of his life in building an unproductive tunnel beneath the river Thames at London; invented a method of shuffling cards without using the hands, and several other devices for dispensing with labor, which, upon completion, were abandoned from economical motives. On his decease, his son and heir, I. K. Brunel, whose practical experience in the Thames Tunnel job, where his biographers assert he had occasion more than once to save his life by swimming, qualified him to tread in his father's shoes, took up his trade. Brunel, Jr., having demonstrated by costly experiments, to the successful proof, but thorough exasperation, of his moneyed backers, that his father's theory for employing carbonic acid gas as a motive power was practicable enough, but too expensive for anything but the dissipation of a millionaire's income, settled down to the profession of engineering science, in which he did as well as his advantages of education enabled him. Like all men in advance of their time, when he considered himself the victim of arbitrary capitalists ignoring the bent of his genius, he did his best work in accordance with their stipulations. He designed the Great Western, the first steamship (paddle-wheel) ever built to cross the Atlantic; and the Great Britain, the original ocean screw steamer. Flushed with these successes, Brunel procured pecuniary support from speculative fools, who, dazzled by the glittering statistical array that can be adduced in support of any chimerical venture, the inventor's repute, and their unbaked experience, imagined that the alluring Orient was ready to yield, like over-ripe fruit, to their shadowy grasp; and tainted as he evidently was with hereditary mania, Brunel resolved to seize the illusionary immortality that he fondly imagined to be within his reach.

There was not much the matter with the brain of Brunel, Jr., but that little was enough; a competent railroad surveyor, a good bridge builder, he needed to be held within bounds when handling other people's funds; for the man's ambition would have lead him to undertake to bridge the Atlantic. He met with the speculators required in this very instance of the constructors of the Great Eastern. This monstrous ship has been described so often, that it would be a cruelty to our readers to inflict the story upon them again.

Natural Gas the Fuel of the Future.—The house of the near future will have no fireplace, steam pipes, chimneys, or flues. Wood, coal oil, and other forms of fuel are about to disappear altogether in places having factories. Gas has become so cheap that already it is supplanting fuels. A single jet fairly heats a small room in cold weather. It is a well known fact that gas throws off no smoke, soot, or dirt. In a brazier filled with chunks of colored glass, and several jets placed beneath, the glass soon became heated sufficiently to thoroughly warm a room 10x30 feet in size. This design does away with the necessity for chimneys, since there is no smoke; the ventilation may be had at the window. The heat may be raised or lowered by simply regulating the flow of gas. The colored glass gives all the appearance of fire; there are black pieces to represent coal, red chunks for flames, yellowish white glass for white heat, blue glass for blue flames, and hues for all the remaining colors of spectrum. Invention already is displacing the present fuels for furnaces and cooking ranges and glass, doing away with delay and such disagreeable objects as ashes, kindling wood, etc. It has only been within the past few years that natural gas has been utilized to any extent, in either Pennsylvania, New York or Ohio. Yet its existence has been known since the early part of the century. As far back as 1821, gas was struck in Fredonia, Chautauqua county, N. Y., and was used to illuminate the village inn when Lafayette passed through the place some three years later. Not a single oil well of the many that have been sunk in Pennsylvania has been entirely devoid of gas, but even this frequent contact with what now seems destined to be the fuel of the future bore no fruit of any importance until within the past few years. It had been used in comparatively small quantities previous to the fall of 1884, but it was not until that time that the fuel gave any indication of the important role it was afterward to fill. At first ignored, then experimented with, natural gas has been finally so widely adopted that to-day, in the single city of Pittsburgh, it displaces daily 10,000 tons of coal, and has resulted in building cities in Ohio and the removal thereto of the glass making industries of the United States. The change from the solid to the gaseous fuel has been made so rapidly, and has effected such marked results in both the processes of manufacture and the product, that it is no exaggeration to say that the eyes of the entire industrial world are turned with envious admiration upon the cities and neighborhoods blessed with so unique and valuable a fuel. The regions in which natural gas is found are for the most part coincident with the formations producing petroleum. This, however, is not always the case; and it is worthy of notice that some districts which were but indifferent oil-producers are now famous in gas records. The gas driller, therefore, usually confines himself to the regions known to have produced oil, but the selection of the particular location for a well within these limits appears to be eminently fanciful. The more scientific generally select a spot either on the anticlinal or synclinal axis of the formation, giving preference to the former position. Almost all rock formations have some inclination to the horizon, and the constant change of this inclination produces a series of waves, the crests of which are known as anticlines, and the troughs as synclines. Many drillers suppose that the gas seeks the anticlines and the oil the synclines, but others, equally long-headed, discard entirely all theory of this kind, and drill wherever it may be most convenient or where other operators have already demonstrated the existence of gas. It will surprise many of our readers to know that the divining rod, that superstitious relic of the middle ages, is still frequently called upon to relieve the operator of the trouble of a rational decision. The site having been selected, the ordinary oil-drilling outfit is employed to sink a hole of about six inches in diameter until the gas is reached. In the neighborhood of Pittsburgh, this is usually found at a depth of 1,300 to 1,500 feet, in what is known as the Third Oil Sand, a sandstone of the Devonian period. Where the gas comes from originally is an open question. When the driller strikes gas, he is not left in any doubt of the event, for if the well be one of any strength, the gas manifests itself by sending the drill and its attachments into the air, often to a height of a hundred feet or more. The most prolific wells are appropriately called "roarers." During the progress of the drilling, the well is lined with iron piping. Occasionally this is also blown out, but as a rule the gas satisfies itself with ejecting the drill. When the first rush of gas has thrown everything movable out of its way, the workmen can approach, and chain the giant to his work. The plant at the well is much simpler than one would suppose. An elbow joint connects the projecting end of the well piping with a pipe leading to a strong sheet-iron tank. This collects the salt water brought up with the gas. Ordinarily, about half a barrel accumulates in twenty four hours. A safety valve, a pressure indicator, and a blow-off complete the outfit. When the pressure exceeds a prescribed limit, the valve opens, and the gas escapes into the blow-off. This is usually 30 feet high or more, and the gas issuing from the top is either ignited or permitted to escape into the atmosphere. The pipe line leading from the tank to the city is of course placed underground. Beyond a little wooden house, the blow-off, and a derrick, the gas farms differ little in appearance from those producing less valuable crops. The pressure of the gas at the wells varies considerably. It is generally between 100 and 325 pounds. As much as 750 pounds per square inch has been measured, and in many cases the actual pressure is even greater than this, but, as a rule, it is not permitted to much exceed 20 atmospheres in any receiver or pipe. The best investment for parties of small means that we know of is in town lots in North Baltimore, Ohio. It is on the main line of the B. & O. Railroad and the center of the oil and natural gas discoveries in Ohio. Property is bound to double in value. For further information, address, W. A. Rhodes, North Baltimore, Ohio.

Hints on House Building.—Gas pipes should be run with a continuous fall towards the meter, and no low places. The gas meter should be set in a cool place, to keep it from registering against you; but if a "water meter," it should be protected from freezing. Cupboards, wardrobes, bookcases, etc., generally afford receptacles for dust on their tops. This may be avoided by carrying them clear up to the ceiling. When this is not done, their tops should be sheeted over flush with the highest line of their cornices, so that there may be no sunken lodging-place for dust. Furring spaces between the furring and the outer walls should be stopped off at each floor line with brick and mortar "fire stops;" and the same with hollow interior partition walls. Soil pipes should never have **T** branches; always curves, or **Y** branches. Water pipes should be run in a continuous grade, and have a stop and waste cock at the lowest point, so as to be entirely emptied when desired.

Furnaces should have as few joints as possible, and the iron fire-pot is better lined with fire-brick. There should be no damper in the smoke pipe; but the ash-door should shut air-tight when desired. There should be provision for the evaporation of water in the hot-air pipe. "Air boxes" should never be of wood. All air boxes should be accessible from one end to the other, to clean them of dust, cobwebs, insects, etc. Horizontal hot-air flues should not be over 15 feet long. Parapets should be provided with impervious coping-stones to keep water from descending through the walls. Sewer pipes should not be so large as to be difficult to flush. The oval sections (point down) are the best. Soil-pipes should have a connection with the upper air, of the full diameter of the pipe to be ventilated. Stationary wash-tubs of wood are apt to get soaked up with organic matter and filth. Stationary washstands in bedrooms should have small traps; underneath each should be a leaden tray to protect ceilings in case of leakage, breakage or accidental overflow. This tray should have an overflow, and this overflow should be trapped, if connected with the foul-pipe system (which it should *not* be if possible to arrange it otherwise). Flues should have a smooth parging or lining, or they will be apt to draw with difficulty. Gas pipes of insufficient diameter cause the flames to burn with unsteady, dim light. Made ground is seldom fit for immediate building; and never for other than isolated structures. Ashes, street-sweepings, garbage, rotten vegetation, and house refuse are unfit filling for low ground on which it is intended to build. Cobble pavements are admirably adapted to soaking-up and afterwards emitting unwholesome matters. Asphalt has none of this fault. Wood is pernicious in this respect. "Gullies" in cellar floors should be properly trapped; and this does *not* mean that they shall have bell-traps nor siphon-traps with shallow water-seal. Cellar windows should be movable to let in air, and should have painted wire-screens to keep out cats, rats, etc. New walls are always damp. Window sills should project well out beyond the walls, and should be grooved underneath so as to throw the water clear of the walls. Cracks in floors, between the boards, help the accumulation of dirt and dust, and may harbor vermin. Narrow boards of course have narrower interstitial cracks than wide boards do. "Secret nailing" is best where it can be afforded. Hot-air flues should never be carried close to unprotected woodwork. Electric bells, when properly put up and cared for, are a great convenience in a house; but when they don't work, they are about as aggravating as the law allows. Cheap push-buttons cause a great deal of annoyance. Silver-plated faucets and trimmings blacken with illuminating and sewer gases. Nickel-plating is perhaps a less pleasing white, but is cheaper and does not discolor readily. Windows are in most respects a great blessing; but there may be too much of a good thing. It is unreasonable to expect that one grate or stove or furnace can heat a whole county. Don't attempt it. If you have too many windows on the "cold side" of a house, give them double sashes (*not* double panes), and "weather-strip" them. Unpainted trimmings should be of hardwood. Yellow pine finishes up well. Butternut is brighter than walnut. Cherry makes a room cheerful. Walnut is dull and dismal.

The Forests of the World.—The rapid exhaustion of the forests of the world, and more particularly of the once great reserves of timber in the United States and Canada, renders it inevitable that, in a very few years indeed, iron must supersede wood for a variety of uses. The drain upon the world's resources in timber is prodigious. Every year 92,000,000 railway sleepers are used in America alone, while to supply firewood for the whole of the States, fourteen times the quantity of wood consumed by the railways is annually required. At the computation of the most recent statistics there were 441,000,000 of acres of woodland in the United States; but since over 50,000,000 of acres are cut down yearly, this great area of timber will be non-existent in less than twenty years, unless replanting upon a very extensive scale be at once undertaken. Already efforts are being made in this direction, and not long since some 4,000,000 of saplings were planted in a single day in Kansas and the neighboring States. But since the daily consumption is even greater than this, it is obvious that the work of replanting must be undertaken systematically if it is to keep pace, even approximately, with the destruction. In France and Germany, where the forests are national property, forestry has been elevated to the status of an exact science; but the timber lands of those countries are small indeed compared with those in the United States.

A Church Built from a Single Tree.—A redwood tree furnished all the timber for the Baptist church in Santa Rosa, one of the largest church edifices in the country. The interior of the building is finished in wood, there being no plastered walls. Sixty thousand shingles were made from the tree after enough was taken for the church. Another redwood tree, cut near Murphy's Mill, about ten years ago, furnished shingles that required the constant labor of two industrious men for two years before the tree was used up.

Trees That Sink.—Of the more than four hundred species of trees found in the United States there are said to be sixteen species whose perfectly dry wood will sink in water. The heaviest of these is the black ironwood of southern Florida, which is more than thirty per cent. heavier than water. Of the others, the best known are the lignum vitæ and mangrove; another is a small oak found in the mountains of western Texas, southern New Mexico, and Arizona, and westward to Colorado, at an elevation of 5,000 to 10,000 feet.

Artificial Wood.—You can produce an artificial fire and waterproof wood in the following manner. More or less finely divided wood shavings, straw, tan, etc., singly or mixed, are moistened with a weak solution of zinc chloride of about 1·026 sp. gr., and allowed to dry. They are then treated with a basic solution of magnesium chloride of 1·725 to 1·793 sp. gr., and pressed into moulds. The materials remain ten to twelve hours under pressure, during which time they harden while becoming heated. After being dried for several days in a warm, airy place, they are placed for ten or twelve hours into a strong solution of zinc chloride of about 1·205 sp. gr., and finally dried again. The product is stated to be workable like hardwood, and to be capable of taking a fine polish after being tooled. It is fireproof and impermeable to water, and weak acid or alkaline solutions, and not affected by the humidity of the atmosphere, being well suited to decorative purposes, as it will not warp and fly like wood, but retain its form.

How to Stain Wood.—The following are recipes for staining wood, which are used in large establishments with great success: Light Walnut—Dissolve 3 oz. permanganate of potash in six pints of water, and paint the wood twice with the solution. After the solution has been left on the wood for from five to ten minutes, the wood is rinsed, dried, oiled, and finally polished. Light Mahogany—1 oz. finely cut alkanet root, 2 ozs. powdered aloe, and 2 ozs. powdered dragon's blood are digested with 26 ozs. of strong spirits of wine in a corked bottle, and left in a moderately warm place for four days. The solution is then filtered off, and the clear filtrate is ready for use. The wood which is to be stained is first passed through nitric acid, then dried, painted over with the alcoholic extract, dried,

oiled and polished. Dark Walnut.—3 ozs. permanganate of potash are dissolved in six pints of water, and the wood is painted twice with this solution. After five minutes the wood is washed, and grained with acetate of iron (the ordinary iron liquor of the dyer) at 20° Tw. Dry, oil and polish as usual. Gray—1 oz. nitrate of silver is dissolved in 45 ozs. water, and the wood painted twice with the solution; afterwards the wood is submitted to the action of hydrochloric acid, and finally washed with ammonia. It is then dried in a dark place, oiled and polished. This is said to give remarkably good results on beech, pitch pine and poplar. Black—7 ozs. logwood are boiled with three pints of water, filtered, and the filtrate mixed with a solution containing 1 oz. of sulphate of copper (blue copperas). The mixture is left to clear, and the clear liquor decanted while still hot. The wood is placed in this liquor for twenty-four hours; it is then exposed to the air for twenty-four hours, and afterwards passed through a hot bath of nitrate of iron of 6° Tw. If the black, after this treatment, should not be sufficiently developed, the wood has to be passed again through the first logwood bath.

The Highest Chimney in the World.—The highest chimney in the world is said to be that recently completed at the lead mines in Mechernich. It is 134 meters (439 ft. 6 in.) high, was commenced in 1884, and was carried up 23 meters before the frost set in; building was again resumed on the 14th of last April, and it was completed last September. The foundation, which is of dressed stone, is square, measuring 11 meters (33 ft.) on each side, and is 3·50 meters (11 ft. 6 in.) deep; the base is also square, and is carried up 10 meters (33 ft.) above the ground. The chimney-stack is of circular section, 7·50 meters (24 ft. 6 in.) diameter at the bottom, and tapering to 3·50 meters diameter (11 ft. 6 in.) at the top, and is 120·50 meters (395 ft.) high.

How to Measure Round Tanks.—Square the diameter of the tank, and multiply by ·7854, which gives the area; then multiply area by depth of tank, and the cubic contents will be found. Allow 6¼ gallons for each cubic foot.

The Largest Buildings in the World.—Where is the largest building in the world situated? The answer to this question must depend upon what the term "building" is held to represent. The Great Wall of China, 1,280 miles in length, wide enough to allow six horsemen to ride abreast along it, and with an average height of 20 ft., may fairly be called a building; so, too, may be called the Great Pyramid of Egypt. The question, however, was not meant to include such works as these. Some have supposed that the Vatican at Rome, with its eight grand staircases, 200 smaller staircases, 20 courts, and 11,000 apartments, is the largest building in the world; but surely this is a collection of palaces rather than a single building. The same objection applies to the famous monastery of the Escurial in the province of Madrid, with its seven towers, fifteen gateways, and 12,000 windows and doors, and to many other vast piles. For the largest single building extant, we must look to St. Peter's at Rome, within which our great cathedral, St. Paul's, could easily stand. St. Peter's occupies a space of 240,000 sq. ft., its front is 400 ft. broad, rising to a height of 180 ft.; the length of the interior is 600 ft., its breadth 442 ft. It is capable of holding 54,000 people, while its piazza, in its widest limits, holds 624,000. It is only by degrees that one is able to realize its vast size. St. Peter's holds 54,000 persons; Milan Cathedral, 37,000; St. Paul's, Rome, 32,000; St. Paul's, London, 25,600; St. Petronio, Bologna, 24,400; Florence Cathedral, 24,300; Antwerp Cathedral, 24,000; St. Sophia, Constantinople, 23,000; Notre Dame, Paris, 21,000; Pisa Cathedral, 13,000; St. Stephen's, Vienna, 12,400; Auditorium, Chicago, 12,000; St. Mark's, Venice, 7,000.

The Biggest Bell in the World.—There is a bell in the Temple of Clars, at Kinto, Japan, which is larger than the great bell of Moscow, or any other. It is covered with Chinese and Sanskrit characters which Japanese scholars have not yet succeeded in translating. There is no record of its casting. Its height is 24 ft., and at the rim it has a thickness of 16 in. It has no clapper, but is struck on the outside by a kind of wooden battering-ram. We are unable to obtain any more exact particulars as to the dimensions of this bell in order to determine whether or no it really does excel the "Monarch" of Moscow, which weighs about 193 tons, is 19 ft. 3 in. in height, 60 ft. 9 in. in circumference, and 2 ft. thick. There is another huge bell at Moscow, and those at Amazapoora, in Burmah, and at Pekin are far bigger than any we have in this country. Our biggest bell is "Great Paul," which was cast at Loughborough in 1881, and which weighs 17½ tons. Taking purity, volume, and correctness of note into account, it is probably the finest bell in Europe.

The Oldest Cities in the World.—They are the following:—Argos, Athens and Thebes, in Greece; Crotona and Rome, in Italy; Cadiz and Saguntum, in Spain; Constantinople, in Turkey, and Marseilles, in France, which was founded by a colony of Greeks 580 B. C. The age of these cities varies from twenty-four to twenty-seven centuries.

How to Manufacture Oil of Apple, or Essence of Apple.—The essence of apple is composed of aldehyde 2 parts; chloroform, acetic ether and nitrous ether and oxalic acid each 1 part; glycerin 4 parts; amyl valerianice ther 10 parts.

A Formula for the Manufacture of Artificial Cider.—Imitation cider consists of 25 gallons soft water, 25 pounds New Orleans sugar; 1 pint yeast; two pounds tartaric acid. Put all the ingredients into a clean cask, and stir them up well after standing twenty-four hours with the bung out. Then bung the cask up tight, add 3 gallons spirits, and let it stand forty-eight hours, after which time it will be ready for use. Champagne cider can be prepared by taking 10 gallons of cider, old and clear. Put this in a strong, iron-bound cask pitched inside (like beer casks); add 2½ pints clarified white plain syrup; then dissolve in it 5 ounces tartaric acid; keep the bung ready in hand, then add 7½ ounces of potassium bicarbonate; bung it as quickly and as well as possible.

Recipe for Making Instantaneous Ink and Stain Extractor.—Take of chloride of lime 1 pound, thoroughly pulverized, and 4 quarts soft water. The foregoing must be thoroughly shaken when first put together. It is required to stand twenty-four hours to dissolve the chloride of lime; then strain through a cotton cloth, after which add a teaspoonful of acetic acid to every ounce of the chloride of lime water.

Wood, which is a more unyielding material, acts with tremendous force when wetted, and advantage has been taken of this fact in splitting blocks of granite. This process is largely adopted in Dartmoor. After a mass of granite has been rent from the mountain by blasting, it is measured in every direction to see how best to divide it into smaller blocks. These are traced out by straight lines on the surface, and a series of holes are drilled at short intervals along this line. Wedges of dry wood are then tightly driven into the holes and wetted, and the combined action of the swelling wood splits the block in the direction required, and without any destructive violence. The same process is then carried out upon the other faces, and the roughly-shapen block finished with the hammer and chisel.

The Weight and Value of a Cubic Foot of Solid Gold or Silver.—A cubic foot of gold weighs about 19,300 ounces, and gold is worth $20.67 per ounce. Silver is worth $1.29 per ounce, and a cubic foot weighs 10,500 ounces. Consequently the cubic foot of gold would be worth $398,931, and the silver $13,545.

To Remove Spots on Brass.—Sulphuric acid will remove spots from brass that will not yield to oxalic acid. It may be applied with a brush, but great care must be taken that no drop of the acid shall come in contact with the clothes or skin, as it is ruinous to garments and cuticle. Bath brick or rottenstone may be used for polishing.

A Formula to Make a Good Shoe Dressing.—Gum shellac, ½ pound; alcohol, 3 quarts; dissolve, and add camphor, 1½ ounces; lampblack, 2 ounces. The foregoing will be found to give an excellent gloss, and is especially adapted to any leather, the surface of which is roughened by wear.

Receipts for Dyeing Cotton Fabric Red, Blue and Ecru.—Red: Muriate of tin, two-thirds cupful, add water to cover goods; raise to boiling heat; put in goods one hour; stir often; take out, empty kettle, put in clean water with Nicaragua wood one pound; steep one-half hour at hand heat, then put in goods and increase heat one hour, not boiling. Air goods, and dip one hour as before. Wash without soap. Blue: For three pounds goods, blue vitriol 4 ounces; boil few minutes, then dip goods three hours; then pass them through strong lime water. Ecru: Continue the foregoing operation for blue by passing the goods through a solution of prussiate of potash.

Motion of Waves.—The progressive motion of a wave on the water exactly corresponds in speed with that of a pendulum whose length is equal to the breadth of the wave; the same law, gravity, governs both.

Light of the Sun.—A photometric experiment of Huygens, resumed by Wollaston, a short time before his death, teaches us that 20,000 stars the same size as Sirius, the most brilliant in the firmament, would need to be agglomerated to shed upon our globe a light equal to that of the sun.

Land Cultivation in Japan.—The entire arable land of the Japanese empire is officially put at only 11,215,000 acres; but it is so fertile and thoroughly cultivated that it feeds a population of 37,000,000, about that of France. Rice is one of the principal crops, and of this some 200,000,000 bushels are raised annually.

Old London Bridge.—As early as the year 978 there was a wooden bridge where London bridge now stands. This was replaced by another in 1014, and another in 1209. The present London bridge was erected in 1831, and may be considered the oldest existing bridge over the river.

The Shortest Method of Removing Silver from Plated Ware Before Replating.—Dip the article in nitric acid; this will remove the silver.

A Formula for White Metal.—Copper, 69.8 parts; nickel, 19.8 parts; zinc, 5.5 parts; cadmium, 4.7 parts. It takes a fine polish.

Curiosities of Metal Working.—At a recent meeting of scientific men, a speaker produced an anklet worn by East Indian women. This is a flat curb chain about one inch broad, with the links very close, and weighing about ten or twelve ounces. It is composed of a species of brass composed of copper and lead, without any trace of silver, zinc, or tin. Such anklets are sold for a few pence, and they are cast all at once, complete as an endless chain. The links show no sign of having been united in any way. How it was possible to produce such a casting as this passed his comprehension, and he hoped that some one who had seen them made would explain the nature of the process. From the East much that was curious in metallurgical art came. Cast-iron was, he believed, first made purposely in China. It was, however, frequently produced unintentionally, when wrought-iron was made direct from the ore in little furnaces about as big as a chimney-pot. It was found among the cinders and ash of the coarcoal-fire in grains or globules, which were not only like shot, but were actually used as shot by the natives. He showed what he believed was the only specimen in England of this cast-iron, in a bottle. He next referred to the celebrated Damascene blades of Indian swords, and explained that these blades were an intimate mixture of wrought-iron and hard steel, which must have required great skill, time and patience for its production. One patern, in particular, known as "Mary's Ladder," showed wonderful finish and accuracy. Concerning the tempering of these blades little was known; but it was stated that it was affected by a long-continued hammering, or rather tapping, of the blade while cold.

How Many Tons of Coal a Large Steamship Consumes in a Day.—"Ocean steamers are large consumers of coal. The Orient line, with their fleet of ships running to Australia every two weeks, may be mentioned. The steamship Austral went from London to Sydney in thirty-five days, and consumed on the voyage 3,641 tons of coal; Her coal bunkers hold 2,750 tons. The steamship Oregon consumes over 330 tons per day on her passage from Liverpool to New York; her bunkers will hold nearly 4,000 tons. The Stirling Castle last year brought home in one cargo 2,200 tons of tea, and consumed 2,800 tons of coal in doing so. Immense stocks of coal are kept at various coaling stations. St. Vincent, Madeira, Port Said, Singapore and others; the reserve at the latter place is about 20,000 tons. It is remarkable with what rapidity these steamers are coaled; for instance, the Orient steamship last year took in over 1,100 tons at Port Said in five hours."

What a Man Eats.—A French statistician has just ascertained that a human being of either sex who is a moderate eater and who lives to be 70 years old consumes during his life a quantity of food which would fill twenty ordinary railway baggage cars. A "good eater," however, may require as many as thirty.

An Australian Railway Viaduct.—The Werribee Viaduct, in the colony of Victoria, is the longest work of the kind in Australia. The structure consists of lattice-girder work. It is 1,290 feet in length, and runs to a height of 125 feet above the level of the Werribee river. The viaduct has fifteen spans each of 60 feet, and thirteen spans of 30 feet. The total cost of the bridge was £600,000.

The Sharpening of Tools.—Instead of oil, which thickens and smears the stone, a mixture of glycerine and spirit is recommended. The proportions of the composition vary according to the class of tool to be sharpened. One with a relatively large surface is best sharpened with a clear fluid, three parts of glycerine being mixed with one part of spirit. A graver having a small cutting surface only requires a small pressure on the stone, and in such cases the glycerine should be mixed with only two or three drops of spirit.

Recipes for Plumbers.—Chloride of zinc, so much used in soldering iron, has, besides its corrosive qualities, the drawback of being unwholesome when used for soldering

the iron tins employed to can fruit, vegetables and other foods. A soldering mixture has been found which is free from these defects. It is made by mixing one pound of lactic acid with one pound of glycerine and eight pounds of water. A wooden tank may be rendered capable of withstanding the effects of nitric or sulphuric acids by the following methods:—Cover the inside with paraffin; go over the inside with a sadiron heated to the temperature used in ironing clothes. Melt the paraffin under the iron so as to drive it into the wood as much as possible, then with a cooler iron melt on a coat thick enough to completely cover the wood. For brassing small articles: To one quart water add half an ounce each of sulphate copper and protochloride of tin. Stir the articles in the solution until the desired color is obtained. Use the sulphate of copper alone for a copper color. A good cement for celluloid is made from one part shellac dissolved in one part of spirit of camphor and three to four parts of ninety per cent. alcohol. The cement should be applied warm, and the broken parts securely held together until the solvent has entirely evaporated. Tin and tin alloys, after careful cleansing from oxide and grease, are handsomely and permanently bronzed if brushed over with a solution of one part of sulphate of copper (bluestone) and one part of sulphate of iron (copperas) in twenty parts of water. When this has dried, the surface should be brushed with a solution of one part of acetate of copper (verdigris) in acetic acid. After several applications and dryings of the last named, the surface is polished with a soft brush and bloodstone powder. The raised portions are then rubbed off with soft leather moistened with wax in turpentine, followed by a rubbing with dry leather.

Protecting Water-Pipes Against Frost.—A device has been brought forward for protecting water-pipes against freezing, the arrangement being based upon the fact that water in motion will remain liquid at a lower temperature than water at rest. One end of a copper rod, placed outside the building, is secured to a bracket, and the other end is attached to one arm of a weighted elbow lever; to the other arm of the lever is secured a rod which passes into the building and operates a valve in the water-pipe. By means of turn buckles the length of the copper rod can be adjusted so that before the temperature reaches the point at which there would be danger of the water in the pipes freezing the valve will be opened to allow a flow of water; beyond this point the valve opening will increase and the flow become more rapid as the cold becomes more intense, and as the temperature rises the valve is closed. This plan sets up a current in the pipes, which replaces the water as it grows cold by the warmer water from the main.

Destructive Work of Barnacles.—Unless some paint can be found which is proof against barnacles, it may be necessary to sheath steel vessels with an alloy of copper. An attempt has been made to cover the hulls with anti-corrosive paint and cover this with an outside coat which should resist the attack of barnacles. Somehow the barnacles eat their way through the paint and attach themselves to the hull. The vast item of expense attached to the dry-docking of steel ships makes this matter a not unimportant one. The barnacles interfere greatly with the speed of a vessel, and in a cruiser speed is of prime importance. They attach themselves in an incredibly short time to a steel hull, and it is not long before their effect can be noted by a comparison of the reading of the log.

How to Frost Glass.—Two ounces of spirits of salts, two ounces of oil of vitriol, one ounce of sulphate of copper, one ounce of gum arabic, mixed together and dabbed on with a brush; or this:—Dab your squares regularly over with putty; when dry go over them again—the imitation will be executed. Or this:—Mix Epsom salts with porter and apply it with a brush. Or this one:—Grind and mix white lead in three-fourths of boiled oil, and one-fourth of spirits of turpentine, and, to give the mixture a very drying quality, add sufficient quantities of burnt white vitriol and sugar of lead. The color must be made exceedingly thin, and put on the panes of glass with a large painting-brush in as even a manner as possible. When a number of the panes are thus painted take a dry duster, quite new, dab the ends of the bristles on the glass in quick succession till you give it a uniform appearance; repeat this operation till the work appears very soft, and it will then appear like ground glass. When the windows require fresh painting, get the old coat off first by using strong pearlash water.

How to Preserve Posts.—Wood can be made to last longer than iron in the ground, if prepared according to the following receipe:—Take boiled linseed oil and stir in pulverized coal to the consistency of paint. Put a coat of this over the timber, and there is not a man that will live to see it rot.

What Diamond Dyes and Paints Are Made of.—Solutions of the aniline colors.

What the Ingredients Are of Soapine and Pearline.—They consist of partly effloresced sal soda mixed with half its weight of soda ash. Some makers add a little yellow soap, coarsely powdered, to disguise the appearance, and others a little carbonate of ammonium or borax.

How Many Thousand Feet of Natural Gas are Equal in Heat-Creating Power to One Ton Anthracite Coal.—About 40,000 cubic feet.

SUSTAINING POWER OF ICE.

The sustaining power of ice at various degrees of thickness is given in the following paragraphs:

At a thickness of two inches, will support a man.

At a thickness of four inches, will support man on horseback.

At a thickness of six inches, will support teams with moderate loads.

At a thickness of eight inches, will support heavy loads.

At a thickness of ten inches, will support 1,000 pounds to the square foot.

THE EXPANSIVE POWER OF WATER.

It is a well known, but not less remarkable fact, that if the tip of an exceedingly small tube be dipped into water, the water will rise spontaneously in the tube throughout its whole length. This may be shown in a variety of ways; for instance, when a piece of sponge, or sugar, or cotton is just allowed to touch water, these substances being all composed of numberless little tubes, draw up the water, and the whole of the piece becomes wet. It is said to *suck up* or *imbibe* the moisture. We see the same wonderful action going on in nature in the rising of the sap through the small tubes or pores of the wood, whereby the leaves and upper portions of the plant derive nourishment from the ground.

This strange action is called "capillary," from the resemblance the minute tubes bear to a hair, the Latin of which is *capillus*. It is, moreover, singular that the absorption of the water takes place with great force. If a dry sponge be enclosed tightly in a vessel, it will expand when wetted, with sufficient force to burst it, unless very strong.

London Water Supply.—The quantity of water consumed in London amounts to about 145,000,000 gallons a day. If this quantity could be collected together, it would form a lake 700 yards long, 200 wide, and with a uniform depth of 20 feet.

A Protection for Embankments.—Engineers often have considerable trouble with the loose soil of newly-made embankments, so apt to slip or be washed away before they are covered with vegetation. According to a French railway engineer, the best plan is to sow the banks with the double poppy. Several months elapse before grasses and clovers develop their feeble roots, but the double poppy germinates in a few days, and in a fortnight has grown sufficiently to afford some protection to the slope, while at the end of three or four months the roots, which are ten or twelve inches in length, are found to have interlaced so as to retain the earth far more firmly than those of any grass or grain. Although the double poppy is an annual, it sows itself after the first year.

A Cheap Concrete.—A kind of concrete made without cement is composed of 8 parts of sand, gravel and pebbles, 1 part of burnt and powdered common earth, 1 part of pulverized clinkers and cinders, and 1½ parts of unslacked hydraulic lime. These materials are thoroughly incorporated while dry into a homogeneous mixture, which is then wetted up and well beaten. The result of this is a hard and solid mass, which sets almost immediately, becoming exceedingly strong after a few days. It may be made still stronger by the addition of a small proportion—say 1 part—of cement.

Marking Tools.—To mark tools, first cover the article to be marked with a thin coating of tallow or beeswax, and with a sharp instrument write the name in the tallow. Clear with a feather, fill the letters with nitric acid, let it remain from one to ten minutes, then dip in water and run off, and the marks will be etched into the steel or iron.

How to Prevent Chisel Handles Splitting.—All carpenters know how soon the butt-end of chisel handles split when daily exposed to the blow of a mallet or hammer. A remedy suggested by a Brooklyn man consists simply of sawing or cutting off the round end of the handle so as to make it flat, and attaching by a few nails on the top of it two discs of sole leather, so that the end becomes similar to the heel of the boot. The two thicknesses of leather will prevent all further splitting, and if, in the course of time, they expand and overlap the wood of the handle, they are simply trimmed off all around.

The Largest Wheel of Its Kind Ever Made in the World.—The greatest wheel of its kind in the world, a very wonder in mechanism, was built for the Calumet and Hecla Mining Company of Lake Superior, Mich., for the purpose of lifting and discharging the "tailings," a waste from the copper mines, into the lake. Its diameter is 54 feet; weight in active operation, 200 tons. Its extreme dimensions are 54 feet in diameter. Some idea of its enormous capacity can be formed from the fact that it receives and elevates sufficient sand every twenty-four hours to cover an acre of ground a foot deep. It is armed on its outer edge with 432 teeth, 4.71 inches pitch and 18 inches face. The gear segments, eighteen in number, are made of gun iron, and the teeth are machine-cut, epicycloidal in form. It took two of the most perfect machines in the world 100 days and nights to cut the teeth alone, and the finish is as smooth as glass. The wheel is driven by a pinion of gun iron containing 33 teeth of equal pitch and face and runs at a speed of 600 feet per minute at the inner edge, where it is equipped with 448 steel buckets that lift the "tailings" as the machine revolves and discharges them into launders that carry them into the lake. The shaft of the wheel is of gun iron, and its journals are 22 inches in diameter by 3 feet 4 inches long. The shaft is made in three sections and is 30 inches in diameter in the center. At a first glance the great wheel looks like an exaggerated bicycle wheel, and it is constructed much on the same principle, with straining rods that run to centers cast on the outer sections of the shaft. The steel buckets on either side of the gear are each 4 feet 5½ inches long and 21 inches deep, and the combined lifting capacity of the 448, running at a speed of 600 feet per minute, will be 3,000,000 gallons of water and 2,000 tons of sand every twenty-four hours. The mammoth wheel is supported on two massive adjustable pedestals of cast iron weighing twelve tons each, and its cost at the copper mines before making a single revolution, $100,000.

Strength of Brick Walls.—The question of strength of brick walls is often discussed, and differences of opinion expressed. The following is one of the rules given:—For first-class buildings, with good workmanship, the general average should not exceed a greater number of feet in height than three times its thickness of wall in inches, and the length not to exceed double the height, without lateral supports of walls, buttresses, etc., as follows for safety:

Thickness.	Safe Height.	Length.
8½ inch walls	25 feet.	50 feet.
13 "	40 "	80 "
17 "	55 "	110 "
22 "	66 "	130 "
26 "	78 "	150 "

Where the lengths must exceed these proportions, as in depots, warehouses, etc., the thickness should be increased, or lateral braces instituted as frequently as practicable.

Qualities of Building Stone.—The principal qualities of a good building stone are—(1) Strength, (2) hardness, (3) durability, (4) appearance, (5) facility for working. There are also other minor points; but stone possessing one or more of the above qualities, according to the purpose for which it is required, may be regarded as good for that purpose.

Strength of Stone.—Stone should only be subjected to a compressive strain. It is occasionaly subject to a cross strain, as in lintels over doors and windows; these are, however, contrary to the true principles of construction, and should not be allowed except a strong relieving arch is turned over them. The strength of stone in compression is about 120 tons per square foot for the weakest stones, and about 750 tons per square foot for the strongest. No stones are, however, subjected to anything like this amount of compressive force; in the largest buildings it does not amount to more than twelve or fourteen tons per square foot.

Hardness of Stone.—This is of more importance than its strength, especially in pavements or steps, where it is subject to great wear; also in plinths and quoins of buildings where it is desired to preserve a good face and sharp arris. The order of strength and hardness of stone is—(1) Basalt, (2) granite, (3) limestone, (4) sandstone. Granite, serpentine, and gneiss take the first place for strength, hardness and durability, but they will not stand a high temperature. "Stones which are of a fine, uniform grain, compact texture and deep color are the strongest; and when the grain, color, and texture are the same, those are the

strongest which are theheaviest; but otherwise the strength does not increase with the specific gravity." Great hardness is objectionable when the stone has to be worked with a chisel, owing to the labor required to work it. Hard stones, also, generally wear smooth, and become polished, which makes them unsuitable for some purposes. Brittleness is a defect which frequently accompanies hardness, particularly in coarse-grained stones; it prevents them from being worked to a true surface, and from receiving a smooth edge at the angles. Workmen call those hard stones which can only be sawn into slabs by the grit saw, and those soft which can be separated by a common saw.

Expansion of Stone by Heat.—Rocks are expanded by heat and contracted by cooling. Variation in temperature thus causes some building stones to alternately expand and contract, and this prevents the joints of masonry from remaining close and tight. In the United States with an annual thermometric range of more than 90 deg. Fah., this difficulty led to some experiments on the amount of expansion and contraction in different kinds of building stones. It was found that in fine-grained granite the rate of expansion was .000004825 for every degree Fah. of increment of heat; in white crystalline marble it was .000005668; and in red sandstone .000009532, or about twice as much as in granite. In Western America, where the climate is remarkably dry and clear, the thermometer often gives a range of more than 80 deg. in twenty-four hours. This great difference of temperature produces a strain so great that it causes rocks to crack or peel off in skins or irregular pieces, or in some cases, it disintegrates them into sand. Dr. Livingstone found in Africa (12 deg. S. lat., 34 deg. E. long.) that surfaces of rock which during the day were heated up to 137 deg. Fah. cooled so rapidly by radiation at night that unable to stand the strain of contraction, they split and threw off sharp angular fragments from a few ounces to 100 lbs. or 200 lbs. in weight. According to data obtained from Adie "Trans. Roy. Soc. Edin.," xiii., p. 366, and Totten the expansion of ordinary rocks ranges from about 2.47 to 9.63 millionths for 1 deg. Fah.

BLUNDERS AND ABSURDITIES IN ART.

In looking over some collections of old pictures, it is surprising what extraordinary anachornisms, blunders, and absurdities are often discoverable.

In the gallery of the convent of Jesuits at Lisbon, there is a picture representing Adam in paradise, dressed in blue breeches with silver buckles, and Eve with a striped petticoat. In the distance appears a procession of Capuchin monks bearing the cross.

In a country church in Holland there is a painting representing the sacrifice of Isaac, in which the painter has depicted Abraham with a blunderbus in his hand, ready to shoot his son. A similar edifice in Spain has a picture of the same incident, in which the patriarch is armed with a pistol.

At Windsor there is a painting by Antonio Verrio, in which the artist has introduced the portraits of himself, Sir Godfrey Kneller, and May, the surveyor of the works of that period, all in long periwigs, as spectators of Christ healing the sick.

A painter of Toledo, having to represent the three wise men of the East coming to worship on the nativity of Christ, depicted three Arabian or Indian kings, two of them white and one black, and all of them in the posture of kneeling. The position of the legs of each figure not being very distinct, he inadvertently painted three black feet for the negro king, and three also between the two white kings; and he did not discover his error until the picture was hung up in the cathedral.

In another picture of the Adoration of the Magi, which was in the Houghton Hall collection, the painter, Brughel, had introduced a multitude of little figures, finished off with true Dutch exactitude, but one was accoutred in boots and spurs, and another was handing in, as a present, a little model of a Dutch ship.

The same collection contained a painting of the stoning of Stephen, the martyr, by Le Sœur, in which the saint was attired in the habit of a Roman Catholic priest at high mass.

A picture by Rubens, in the Luxembourg, represents the Virgin Mary in council, with two cardinals and the god Mercury assisting in her deliberations.

A STOPPAGE OF THE FALLS OF NIAGARA.

The following remarkable account of the stoppage of Niagara Falls, appeared in the *Niagara Mail* at the time of the occurrence: "That mysterious personage, the oldest inhabitant, has no recollection of so singular an occurrence as took place at the Falls on the 30th of March, 1847. The 'six hundred and twenty thousand tons of water each minute' nearly ceased to flow, and dwindled away into the appearance of a mere milldam. The rapids above the falls disappeared, leaving scarcely enough on the American side to turn a grindstone. Ladies and gentlemen rode in carriages one-third of the way across the river towards the Canada shore, over solid rock as smooth as a kitchen floor. The *Iris* says: 'Table Rock, with some two hundred yards more, was left dry; islands and places where the foot of man never dared to tread have been visited, flags placed upon some, and mementoes brought away. This unexpected event is attempted to be accounted for by an accumulation of ice at the lower extremity of Fort Erie, which formed a sort of dam between Fort Erie and Buffalo.'"

WONDERS OF MINUTE WORKMANSHIP.

In the twentieth year of Queen Elizabeth, a blacksmith named Mark Scaliot, made a lock consisting of eleven pieces of iron, steel and brass, all which, together with a key to it, weighed but one grain of gold. He also made a chain of gold, consisting of forty-three links, and, having fastened this to the before-mentioned lock and key, he put the chain about the neck of a flea, which drew them all with ease. All these together, lock and key, chain and flea, weighed only one grain and a half.

Oswaldus Norhingerus, who was more famous even than Scaliot for his minute contrivances, is said to have made 1,600 dishes of turned ivory, all perfect and complete in every part, yet so small, thin and slender, that all of them were included at once in a cup turned out of a pepper-corn of the common size. Johannes Shad, of Mitelbrach, carried this wonderful work with him to Rome, and showed it to Pope Paul V., who saw and counted them all by the help of a pair of spectacles. They were so little as to be almost invisible to the eye.

Johannes Ferrarius, a Jesuit, had in his posession cannons of wood, with their carriages, wheels, and all other military furniture, all of which were also contained in a pepper-corn of the ordinary size.

An artist, named Claudius Gallus, made for Hippolytus d'Este, Cardinal of Ferrara, representations of sundry birds setting on the tops of trees, which, by hydraulic art and secret conveyauce of water through the trunks and branches of the trees, were made to sing and clap their wings; but, at the sudden appearance of an owl out of a bush of the same artifice, they immediately became all mute and silent.

CURIOUS DISSECTION OF THE OLD AND NEW TESTAMENTS.

SHOWING THE NUMBER OF BOOKS, CHAPTERS, VERSES, WORDS, LETTERS, ETC.

In the Old Testament.		In the New Testament.		Total.
Books.....	39	Books.....	27	66
Chapters...	929	Chapters...	260	1,189
Verses.....	23,214	Verses.....	7,959	31,173
Words.....	592,439	Words.....	281,258	773,697
Letters.....	2,728,100	Letters.....	838,380	3,566,480

Apocrypha—chapters, 183; verses, 6,081; words, 152,185.

The middle chapter and the least in the Bible is Psalm cxvii.

The middle verse is the 8th of Psalm cxviii.

The middle line is in 16th verse, 4th chapter, 2 Chronicles.

The word *and* occurs in the Old Testament 35,543 times; in the New Testament, 10,684 times.

The word *Jehovah* occurs 6,855 times.

OLD TESTAMENT.

The middle book is Proverbs.

The middle chapter is Job xxix.

The middle verse would be in the 2d of Chronicles, 20th chapter, between the 17th and 18th verses.

The least verse is the 1st of Chronicles, 1st chapter, and 1st verse.

NEW TESTAMENT.

The middle book is 2 Thessalonians.

The middle chapter is between the 13th and 14th of Romans.

The middle verse is the 17th of Acts xvii.

The shortest verse is the 35th of John xi.

The 21st verse of the 7th chapter of Ezra contains all the letters of the alphabet.

The 19th chapter of 2 Kings, and the 37th of Isaiah, are alike.

It is stated that the above calculation took three years to complete.

REMARKABLE INSCRIPTION.

The following singular inscription is to be seen carved on a tomb situated at the entrance of the church of San Salvador, in the city of Oviedo. The explanation is that the tomb was erected by a king named Silo, and the inscription is so written that it can be read 270 ways by beginning with the large S in the center. The words are Latin, "Silo princeps fecit."

T I C E F S P E C N C E P S F E C I T
I C E F S P E C N I N C E P S F E C I
C E F S P E C N I R I N C E P S F E C
E F S P E C N I R P R I N C E P S F E
F S P E C N I R P O P R I N C E P S F
S P E C N I R P O L O P R I N C E P S
P C C N I R P O L I L O P R I N C E P
E E N I R P O L I S I L O P R I N C E
P E C N I R P O L I L O P R I N C E P
S P E C N I R P O L O P R I N C E P S
F S P E C N I R P O P R I N C E P S F
E F S P E C N I R P R I N C E P S F E
C E F S P E C N I R I N C E P S F E C
I C E F S P E C N I N C E P S F E C I
T I C E F S P E C N C E P S F E C I T

Besides this singular inscription, the letters H. S. E. S. S. T. T. L. are also carved on the tomb, but of these no explanation is given. Silo, Prince of Oviedo, or King of the Asturias, succeeded Aurelius in 774, and died in 785. He was, therefore, a contemporary of Charlemagne. No doubt the above inscription was the composition of some ingenious and learned Spanish monk.

CURIOUS CALCULATIONS.

CONSUMPTION OF AIR IN ACTIVITY AND REPOSE.

Dr. Radclyffe Hall makes the following interesting statement with regard to the amount of air we consume in repose, and at different degrees of activity: When still, we use 500 cubic inches of air in a minute; if we walk at the rate of one mile an hour, we use 800; two miles, 1,000; three miles an hour, 1,600; four miles an hour, 2,300. If we run at six miles an hour, we use 3,000 cubic inches; trotting a horse, 1,750; cantering, 1,500.

THE VALUE OF LABOR.

Cast iron of the value of £1 sterling is worth, converted into ordinary machinery, £4; in larger ornamented work, £45; in buckles and similar kinds of fancy work, £600; in neck chains, £1,300. Bar iron of the value of £1 sterling is worth, in the form of knives, £36; needles, £70; penknife blades, £950; polished bottons and buckles, £890; balance springs of watches, £5,000.

INTEREST OF MONEY.

Dr. Price, in the second edition of his "Observations on Reversionary Payments," says: "It is well known to what prodigious sums money improved for some time at compound interest will increase. A penny so improved from our Saviour's birth, as to double itself every fourteen years—or, what is nearly the same, put out at five per cent. compound interest at our Saviour's birth—would by this time have increased to more money than could be contained in 150 millions of globes, each equal to the earth in magnitude, and all solid gold. A shilling, put out at six per cent. compound interest would, in the same time, have increased to a greater sum in gold than the whole solar system could hold, supposing it a sphere equal in diameter to the diameter of Saturn's orbit. And the earth is to such a sphere as half a square foot, or a quarto page, to the whole surface of the earth."

WONDERS OF SCIENCE.

A grain of gold has been found by Muncke to admit of being divided into *ninety-five thousand millions of visible parts;* that is, by the aid of a microscope magnifying one thousand times. A sovereign is thus capable of division into ten millions of millions of visible particles, being ten thousand times as many such parttcles as there are men, women and children in all the world.

SPONTANEOUS COMBUSTION.—Liebig, in his "Familiar Letters on Chemistry," has proved the unsoundness of spontaneous combustion. Yet Dr. Lindley gives nineteen instances of something akin, or the rapid ignition of the human body by contact with flame as a consequence of the saturation of its tissues by alcohol.

VIBRATIONS OF THE AIR.—If a person stand beneath a railway girder-bridge with an open umbrella over his head, when a train is passing, the vibration of the air will be distinctly felt in the hand which grasps the umbrella, because the outspread surface collects and concentrates the waves into the focus of the handle.

THE EARTH'S CENTER.—All bodies weigh less the further removed they are from the center of the earth. A block of stone weighing 700 pounds upon the sea-shore, will weigh only 699 pounds if carried up a mountain three miles high. A pendulum oscillates more quickly at the poles than at the equator, because the earth is flatter by twenty-six miles at the poles—that is, the "bob" of the pendulum is that much nearer the earth's center, and therefore heavier, and so swings more quickly.

FIFTEEN THOUSAND SYNONYMS.

A

Abandon—relinquish, give up, decert, forsake, forego, yicld, cede, surrender, resign, abdicate, leave, retire, withdraw from.
Abandoned—reprobate, profligate, forsaken.
Abase—degrade, humble, disgrace, lower, depress.
Abate—reduce, subside, diminish, lessen, decrease.
Abbreviate—curtail, compress,abridge,condense, cptomize, shorten, lessen, reduce.
Abettor—accomplice, aid, accessory.
Abhor—abominate, hate. detest, loathe.
Ability—capacity, power, talent, skill, means.
Able—capable, competent.
Abode—dwelling, habitation, residence.
Abominate—detest, hate, loathe, abhor.
Abridge—contract, curtail, diminish, lessen, shorten.
Abrogate—abolish, cancel, annul, repeal, revoke.
Abrupt—hasty, harsh, steep, rough, sudden, rugged, unceremonious.
Absent—abstracted, heedless, inattentive.
Absorb—engulf, engross, imbibe, swallow.
Abstain—forbear, refrain, withhold.
Abstruse—difficult, hidden, obscure.
Absurd—foolish preposterous, silly, ridiculous, unreasonable.
Abundant—ample, copious, plentiful.
Abusive—disgraceful, insolent, offensive, scurrilous.
Abyss—chasm, gulf.
Accede—agree, acquiescc, assent, comply, consent, yicld.
Accept—admit, receive, take.
Acceptable—agreeable, grateful, welcome.
Accession—addition, augmentation, increase.
Accommodate—adapt, suit, adjust, serve, fit.
Accompany—attend, escort; wait on, go with.
Accomplice—abettor, ally, accessory, associate, assistant.
Accomplish—execute, effect, finish, achieve, fulfill, realize, complete.
Accordingly—agreeably, consequently, therefore, suitably.
Account—description, explanation, recital, narration.
Accumulate—amass, collect, gather, hcap.
Accurate—correct, exact, nice, precise.
Accuse—arraign, asperse, detract, defame, impeach, calumniate, villify, censure.
Achieve—accomplish, realize, effect, complete, execute, fulfill.
Acknowledge—avow, confess, own, grant.
Acknowledgment—admission, avowal, confession, concession, recognition.
Acquaint—communicate, disclose, inform, make known.
Acquiesce—accede, assent, agree, comply, consent, yield.
Acquire—attain, obtain, gain, procure, win.
Acquirement—attainment, gain.
Acquit—clear, discharge, free, forgive, pardon.
Active—agile, busy, vigorous, brisk, quick, industrious, nimble, prompt.
Actual—real, positive, certain, genuine.
Actuate—move, impel, incite, rouse, instigate, animate, induce.
Acute—penetrating, pointed, keen, piercing, subtle, shrewd, sharp.
Adage—apothegm, aphorism, maxim, saying, proverb, axiom.
Adapt—accommodate, adjust, fit, suit.
Add—join, annex, increase.
Addition—accession, augmentation, increase.
Address—ability, courtship, direction, utterance, skill, speech.
Address—accost, salute, harangue, speech, oration, direction, superscription, dexterity.
Adept—skillful, apt, quick, expert.
Adhere—attach, cleave, hold, stick.
Adherent—disciple, partisan, follower, upholder.
Adhesion—attachment, sticking, adherence, union.
Adjacent—adjoining, contiguous, near, close.
Adjourn—postpone, defer, delay, put off.
Adjust—accommodate, adapt, fit, settle, suit.
Administer—give, manage, dispense, supply, serve, execute.
Admiration—amazement, esteem, regard, wonder, surprise.
Admission—entrance, admittance, access,concession, initiation.
Admit—allow, concede, grant, permit, tolerate.
Admonition—advice, caution, counsel, reproof, warning.
Adore—revere, reverence, venerate, worship.
Adorn—deck, embellish, beautify, decorate, ornament.
Adroit—agile, clever, dexterous, skillful.
Adulterate—corrupt, defile, debase, pollute.
Advancement—improvement, furtherance, progression.
Advantage—benefit, good, profit, use.
Adventure—occurrence, incident, casualty, chance, contingency.
Adversary—opponent, enemy, antagonist.
Adverse—hostile, contrary, repugnant, unfortunate, opposed.
Advert—allude, notice, regard, turn.
Advertise—publish, proclaim, announce.
Advice—instruction, admonition, counsel.
Advise—admonish, consult, deliberate, consider.
Advocate—argue, defend, plead, support.
Affability—civility, courteousness, urbanity.
Affable—courteous, civil, pleasing, urbane.
Affair—business, concern, matter, transaction.
Affect—aim, assume, arrogate, move, pretend.
Affecting—feeling, pathetic, touching.
Affection—tenderness, love, kindness, fondness, attachment.
Affiliate—adopt, associate, initiate, receive.
Affinity—conformity, alliance, relationship, kindred, attraction.
Affirm—assert, aver, assure, protest, declare.
Affliction—sadness, sorrow, bereavement, calamity, distress, pain, grief, trouble, tribulation.
Affluence—opulence, wealth, riches, abundance, concourse, influx, plenty.
Afford—impart, grant, give, produce, spare, yield.
Affray—disturbance, broil, feud, fray, quarrel,
Affright—alarm, appall, frighten, terrify, shock, dismay, intimidate, dishearten.
Affront—insult, offend, provoke, outrage.
Afraid—fearful, timid, timorous, terrified.
Aged—old, elderly, senile, advanced in years.
Agent—deputy, factor, representative.
Aggravate—tantalize, provoke, exasperate, irritate.
Aggregate—accumulate, mass, collect, pile.
Agile—nimble, brisk, alert, lively, quick, active, sprightly.
Agitate—disturb, shake, move, discuss.
Agitation—trepidation, tremor, disturbance.
Agony—distress, pain, anguish, torture, suffering.
Agree—consent, assent, accede, concur, comply, acquiesce.
Agreeable—suitable, acceptable, pleasing, grateful.
Agreement—bargain, covenant, accordance, contract, concurrence, harmony.
Aid—assist, help, succor, relieve.
Aim—aspire, endeavor, level, strive, point.
Air—mien, look, manner, appearance, aspect.
Alarm—apprehension, terror, surprise, summons, fright, fear, dread, consternation.
Alienate—withdraw, estrange, transfer.
Allay—soothe, mitigate, appease, assuage.
Allege—assert, advance, adduce, affirm.
Alleviate—mitigate, relieve, soothe, ease, lessen, diminish, abate, lighten.
Alliance—union, league, confederacy, coalition, combination.
Allot—assign, apportion, appoint, distribute.
Allowance—wages, salary, pay, stipend, grant, concession.
All to—very much, entirely, completely, altogether.
Allude—refer, intimate, hint, suggest.
Allure—decoy, attract, seduce, tempt, entice.
Alter—change, vary, modify, rearrange.
Altercation—difference, dispute, quarrel.
Always—continually, incessantly, constantly, ever, perpetually.
Amass—heap, pile, accumulate, collect, gather.
Amazement—surprise, astonishment, admiration, wonder.
Ambiguous—equivocal, doubtful, uncertain, obscure.
Amenable—answerable, responsible, accountable.
Amend—rectify, reform, mend, better, correct, improve.
Amends—restitution, restoration, recompense, reparation.
Amiable—kind, agreeable, obliging, charming, delightful, lovely.
Ample—abundant, large, copious, spacious, extended, plenteous.
Amusement—pastime, recreation, diversion, sport, entertainment.
Ancestors—progenitors, forefathers.
Anecdote—tale, story.
Angry—passionate, resentful, hot, hasty, irascible, wrathful, furious,
Anguish—distress, pain, agony, suffering.
Animate—urge, enliven, exhilarate, encourage, impel, cheer, incite, inspire.
Animation—life, spirits,gayety, buoyancy,vivacity, liveliness.
Animosity—enmity, hatred, hostility, malignity.
Annals—memoirs, anecdotes, chronicles, narrations.
Annex—attach, add, affix, subjoin.
Announce—proclaim, publish, advertise, declare.
Annul—cancel, destroy, revoke, repeal, abolish, annihilate.
Answer—reply, rejoinder, response.
Answerable—accountable, responsible, amenable.
Antagonist—foe, adversary, opponent, enemy.
Antecedent—foregoing, former, previous, anterior, prior, preceding.
Anterior—antecedent, previous, prior, former, foregoing.
Antipathy—aversion, dislike, detestation, abhorrence, hatred.
Antique—ancient, old, antiquated.
Anxiety—uneasiness, caution, care, perplexity, solicitude, disquietude.
Apathy—insensibility, indifference, unconcern, unfeelingness.
Aperture—cavity, hollow.
Aphorism—adage, maxim, apothegm, axiom, proverb, saying.
Apology—plea, excuse, defense.
Appall—daunt, dismay, reduce, depress, discourage.
Apparent—evident, visible, plain, clear, distinct.
Appeal—refer, invoke, call upon.
Appearance—aspect, air, manner, look, mien, semblance.
Appease—assuage, allay, soothe, pacify, calm, tranquilize.
Applaud—extol, praise, commend, approve.
Applause—acclamation, approval, shouting.
Appoint—provide, allot, constitute, fix, ordain, prescribe, depute, order.
Appraise—estimate, value.
Appreciate—value, esteem, prize, estimate.
Apprehension—suspicion, alarm, seizure, terror, fear, fright, dread.
Apprise—make known, acquaint, disclose, inform.
Approach—admittance, access, passage, avenue.
Approbation—approval, concurrence, confirmation, consent, sanction.
Appropriate—set apart, assume, usurp.
Appropriate—adapted, exclusive, peculiar, suitable.
Approve—allow, applaud, commend, like, esteem.
Apt—fit, meet, quick, ready, prompt, liable.

Arbitrator—arbiter, referee, judge, umpire.
Archives—annals, records, reglsters, chronicles.
Ardent—eager, fervent, fiery, hot, passionate, vehement.
Arduous—difficult, trying, laborious, hard.
Argument—debate, dispute, proof, reason.
Arise—ascend, mount, rise, stand up.
Arraign—accuse, charge, impeach.
Arrange—class, adjust, dispose, place.
Arrogance—assumption, haughtiness, pride presumption, self-concelt.
Artful--artificial, cunning, crafty, dexterous, deccitful.
Articulate—speak, utter, pronounce.
Artifice—stratagem, deceit, cheat, finesse, imposition, dcception.
Assembly—assemblage, collection, group.
Associate—companion, friend, mate.
Atrocious—heinous, flagrant, flagitious.
Attitude—position, posture, gesture.
Attract—allure, charm, captivate, entice, win, draw.
Audacity—hardihood, impudence, effrontery, boldness.
Auspicious—favorable, fortunate, lucky, propitious, prosperous.
Austere—rigid, rigorous, stcrn, severe.
Authentic—genuine, authorized, true.
Authority—dominion, force, power, sway, influence, ascendancy.
Avarice—greed, covetousness, cupidity.
Averse—loath, reluctant, repugnant, unwilling, unfavorable, unfortunate.
Aversion—abhorrence, antipathy. detestation, dislikc, repugnance.
Avidity—eagerness, greedlness.
Avocation—occupation, profession, trade, employment, calling, office, business.
Avoid—shun, elude, eschew.
Avow—acknowledge, own, confess, recognize.
Awake—arouse, excite, provoke.
Awe - dread, fear, revercnce.

B

Babbling—chattering, idle talk, prattling, loquacity.
Backward—unwilling, averse, loath, reluctant.
Baffle—disconcert, elude, confound, defeat, confuse.
Balance—equalize, adjust, settle, regulate, poise.
Banter—deride, jest, ridicule, taunt, rally.
Bare - naked, unadorned, stripped, destitute.
Bargain—buy, purchase, contract.
Base—low, vile, mean, evil.
Bashful—modest, diffident, shy, timid.
Basis - pedestal, base, foundation.
Bastard—illegitimate, spurious.
Battle—engagement, combat, fight.
Bear—suffer, undergo, carry, sustain, bring forth, support, endure, yield.
Beat—strike, overthrow, defeat, hit.
Beau—gallant, dandy, sweetheart, fop.
Beatiful—fine, handsome, pretty.
Beautify—decorate, ornament, embellish, adorn, dcck.
Becoming—comely, decent, fit, graceful, suitable.
Beg bcseech, request, ask, crave, supplicate.
Begin—enter upon, originate, commence.
Beguile—mislead, amuse, impose upon, deceive.
Behavior—carriage, deportment, address, conduct.
Behold —observe, see, vicw.
Beholder—observcr, spectator, looker on.
Belief - assent, conviction, confidence, certainty, faith, trust.
Below—beneath, under.
Bend—bow, distort incline, lean, subdue.
Beneath—below, under.
Beneficent—helpful, benevolent, generous, bountiful, liberal, munificent.
Bent—crooked, awry, prepossession, curved, lnclination.
Bequeath—devise, give by will.
Beseech—urge, beg, implore, solicit, supplicate, request, crave, entreat.
Bestow—grant, confer, present, give.
Better—improve, ameliorate, reform, mend.
Bias—warp, prepossession, bent, prejudice.
Blame -inculpate, reprove, upbraid, condemn, censure, reproach, reprehend.
Blameless—guiltlcss, innocent, spotless, faultless unblemished, irreproachable.
Blast—split, wither up, desolate, destroy.
Blemish—flaw, defect, stain, fault, spot, speck.
Blend—mix, mingle, confound.
Bliss—happiness, felicity, beatltude, blessedness.
Blunt—dull, uncouth, brusque, insentient, abrupt.
Blunder—error, mistake.
Boaster—vaunter, blusterer, braggard, braggart.
Boasting—parade, ostentation, vaunting.
Boisterous—violent, vehement, furious, impetuous.
Bold—courageous, daring, insolent, impudent, intrepid, fearless, audacious.
Bondage—servitude, confinement, slavery, imprisonment.
Booty—plunder, sport, prey.
Border—edge, slde, verge, brink, brim, margin, rim.
Bore—penetrate, perforate, pierce.
Bound—define, circumscribe. confine, restrict, limit, terminate.
Bounty—liberality, beneficence, generosity, benevolence, munificence.
Brace—support, pair, couple.
Brave—bold, intrepid, fearless, undaunted, heroic, daring, courageous.
Breach—chasm, break, gap, opening.
Break—dcstroy, shatter, batter, demolish, tame, dissolve, crush, rend.
Breaker—covered rock, surge, wave, sandbank, billow.
Brief—short, epitomized, concise, summary, succinct, compendious.
Bright—lucid, glistening, resplendent, brilliant, glitter ng, clear, shining, sparkling, vivid.
Brilliancy—brightness, luster, radiance, splendor.
Brittle—crisp, frail, fragile.
Broad—far-reaching, wide, ample, extensive, large.
Broil—fright, affray, altercation, feud, quarrel.
Bruise—break, crush, squeeze, pound, compress.
Build—erect, establish, found, construct.
Bulk—magnitude, dimensions, greatness, extent, size, largeness.
Burden—load, cargo, weight, freight.
Burning—ardent, hot, scorching, fiery.
Burst—split, crack, rend, break.
Business—avocation, occupation, employment, trade, work, calling, profession.
Bustle—confusion, hurry, tumult, disorder.
But—notwithstanding, nevertheless, except, however, still, yet, save.
Butchery—havoc, carnage, massacre, slaughter.
Buy—procure, purchase, bargain, obtain.

C

Cabal—coalition, intrigue, plot, combination, league, conspiracy.
Cajole—fawn, wheedle, coax.
Calamity—mishap, misfortune, disaster, mischance.
Calculate—count, reckon, estimate, compute, number.
Call—subpœna, summon, name, cry, bid, invite, exclaim.
Calling—trade, employment, avocation, occupation, profession, business.
Calm—soothe, assuage, allay, appease, compose, tranquilize, quiet, peace, pacify.
Cancel—erase, revoke, destroy, annul, abolish, repeal.
Candid—frank, honest, ingcnuous, open, artless.
Capable—able, skillful, fitted, qualified, competent.
Capacity—capability, talent, faculty, genius, ability.
Caprice—fancy, humor, whim, freak, notion.
Capricious—notional whimsical, variable, fantastical, fickle, changeable.
Captivate—charm, fascinate, take prisoner, enslave, enchant, attract, enrapture.
Captivity—servitude, imprisonment, bondage, confinement.
Capture—prize, seizure.
Care—disquietude, management, worry, anxiety, concern, attention, regard, solicitude.
Careful—provident, circumspect, guarded, prudent, cautious, solicitious, attentive.
Careless—inattentive, unconcerned, negligent, thoughtless, remiss, hcedless.
Caress—fondle, soothe, endear, stroke, embrace.
Carnage—massacre, slaughter, butchery.
Carriage—deportment, walk, bearing, demeanor, manner, behavior, mien.
Carry—bear, convey, transport.
Case—predicament, condition, state, plight, situation.
Cast—throw, fling, direct, turn, hurl.
Casual—accidental, contingent, incidental.
Catch—capture, grip, snatch, lay hold of, seize, grasp.
Cause—origin, inducement, reason, motive, source.
Caution—sollcitude, notice, advice, circumspection, care, admonition, warning.
Cautious—careful, wary, prudent, watchful, circumspect.
Cease—Leave off, stop, desist, discontinue.
Celebrated—illustrious, renowned, famous, honored.
Celebrate—praise, commend, extol, perpetuate.
Celerity—velocity, swlftness, fleetness, quickness, rapidity.
Censure—rebuke, reproach, stricture, blame, reprimand, upbraid, condemnation.
Ceremony—rite, form, observance.
Certain—actual, real, manifest, sure, constant.
Chagrin—vexation, mortification, fretfulness.
Challenge—object, demand, except, claim, defy, accuse, call, dare.
Chance—Casual, accident, fortune, fate, fortuitous, hazard.
Change—alteration, vicissltude, variety, conversion, mutatlon.
Changeable—uncertain, unsteady, lnconstant, mutable, fickle, variable.
Character—manner, quality, mark, description, reputation, cast, letter.
Charity—kindness, beneficence, benevolence, gencrosity, good-will, liberality.
Charm—fascinate, captivate, bewltch, enrapture, attract, delight.
Chasten—chastise, afflict, correct, punish.
Chasteness—purity, simplicity, contlnence, chastity.
Chastise—afflict, correct, punish.
Chattels—effects, movable goods.
Cheat—fraud, imposition, deception, deceit, stratagem.
Cheer—encourage, incite, exhilarate, gladden, comfort.
Cheerfulness—sprightliness, liveliness, jollity, comfort, gayety, mirth, gladness.
Cherish—help, nurture, foster, shelter, indulge, warm.
Chide—scold, reprimand, rebuke, reprove.
Chiefly—mainly, especially, principally, particularly.
Childish—simple, puerile, young, trifling.
Childhood—infancy, minority.
Children—issue, offspring, progeny.
Choke—suffocate, smother, stifle.
Choice—selection, option, election.
Choose—pick, select, elect, prefer.
Circulate—spread, pass, bruit, diffuse, propagate.
Circumscribe—limit, inclose, confine, bound.
Circumstance—situation, event, condition, state, incident.
Circumspect—vigilant, watchful, prudent, wary, particular, cautious.
Circumstantial—minute, accidental, particular, incidental
Civil—obliging, well-bred, polite, polished, urbane, affable, courteous, complaisant.
Civilization—refinement, culture.
Claim—demand, ask, right, pretension.
Clamor—outcry, cry, uproar, noise.
Clandestine—hidden, secret, private.
Class—division, rank, order, degree.
Cleansing—purging, purifying, cleaning.
Clear—obvious, apparent, free, pure, vivid.
Clearly—visibly, manifestly, lucidly, distinctly, obviously, plainly.
Clemency—mercy, kindness, lenity, mildness.
Clever—adroit, expert, skillful, ready.
Climb—mount, ascend, rise, scale.
Cling—hang, clasp, cleave, stick, hold.
Close—confined, shut, near, firm, concise, compact.
Clothes—apparel, habiliments, raiment, covering, attire, garment.
Clouded - overcast, sullen, obscured, variegated, gloomy, dark.
Clumsy—uncouth, unhandy, bungling, awkward.
Coadjutor—colleague, ally, adjutant, assistant.
Coalition—conspiracy, union, combination.
Coarse—gross, vulgar, rude, rough, inelegant, unrefined.
Coax—fawn, wheedle, tease, flatter, cajole.
Coerce—force, compel, restrain.
Cognomen—name, appellation, denomination.
Coherent—consistent, tenacious, adhesive.
Coincide—agree, harmonize, concur.
Cold—unaffecting, shy, frigid, chill, reserved.
Colleague—ally, partner, associate, coadjutor.
Collected—composed, calm, unruffled, placid, cool, gathered.
Collection—gathering, group, assemblage, contribution.
Colloquy—conference, talk, dialogue.
Color—hue, tint, stain.
Combination—confederacy, conspiracy, coalltion, union, league, alliance.
Comely—handsome, becoming, graceful, agreeable.
Comfort—solace, enliven, encourage, console.
Comfortless—wretched, desolate, forlorn.
Comic—funny, laughable, ridiculous, ludicrous.
Command—direction, order, precept, behest, injunction.
Commanding—dictatorial, imperious, authoritative, imperative.
Commence—begin, undertake, originate.
Commend—approve, laud, praise, applaud, extol, recommend.
Commensurate—sufficient, adequate, equal, proportionate.
Comment—utterance, ellucidation, remark, observation, annotation, note, explanation, exposition.
Commiseration—compassion, feeling for, condolence, pity, sympathy.
Commission—authorize, empower, enable.
Commodious—fit, large, suitable, convenient,
Commodity—goods, wares, merchandise.
Common—general, low, mean, frequent, usual, vulgar, ordinary.
Commotion — perturbation, confuslon, tumult, disturbance.
Communicate—tell, impart, reveal, disclose, report, make known.
Communication — commerce, intercourse, conference.
Communion—union, fellowship, converse, intercourse.
Commute—barter, exchange.
Compact—close, solid, firm.
Companion — partner, ally, confederate, accomplice, friend, comrade, associate, chum.
Company—assembly, congregation, crew, band, corporation, association.
Compass—consummate, attain, enclrcle, enclose, environ, invest.
Compassion—commiseratlon, sympathy, tenderness.
Compensation—amends, requital, remuneration, reward, pay, satisfaction,

Competent—skillful, suitable, effective, fitted efficient, qualified, capable, able.
Competition—emulation, rivalry.
Complaining—bemoaning, bewailing, lamenting, repining, regretting,
Complaisant—affable, civil, courteous, agreeable, obliging.
Complete—accomplish, consummate, conclude, execute, effect, finish, fulfill.
Complex—complicate, intricate.
Compliment—flatter, extol, praise.
Comply—accede, agree, assent, consent, yield, acquiesce.
Composed—calm, quiet, put together.
Comprehend—appreciate, embrace, comprise, understand.
Compress—bind, condense, squeeze,
Compulsion—coercion, restraint, force.
Compunction—contrition, repentance, penitence, regret.
Compute—calculate, reckon, count, estimate.
Concede—admit, allow, yield, grant, deliver.
Conceal—cover, disguise, hide, secrete.
Conceit—fancy, vanity, pride, notion, imagination, freak.
Conception—idea, notion, perception, fancy.
Concern—affair, matter, business, care.
Concert—adjust, consult, contrive.
Conciliate—reconcile, propitiate.
Conclude—finish, close, terminate.
Conclusive—convincing, decisive.
Concord—agreement, amity, peace, union, harmony.
Concur—agree, coincide, approve, acquiesce.
Condemn—reproach, doom, sentence, blame.
Condense—shorten, contract, abbreviate,
Condescension—submission, humility, deference.
Condition—stipulation, situation, state, rank.
Condolence—sympathy, commiseration, compassion.
Conduct—behavior, deportment, management.
Confederate—associate, ally, accomplice.
Confer—grant, bestow, give.
Confess—admit, disclose, acknowledge, own
Confide—trust, depend, rely, repose.
Confident—assured, bold, positive.
Confine—imprisoned, circumscribed, limited, contracted.
Confirm—strengthen, corroborate, establish.
Conform—comply, yield, submit.
Congruity—consistency, agreement.
Connected—joined, united, related.
Conquer—overcome, subdue, vanquish.
Consent—agree, assent, comply, yield, accede.
Consider—ponder, deliberate, reflect.
Consistent—agreeing, accordant.
Conspicuous—noted, prominent, illustrious, distinguished.
Contract—build, erect, frame, form, make.
Consume—absorb, waste, destroy.
Contagious—infectious, epidemic.
Contaminate—corrupt, defile, taint, poison, pollute.
Contemplate—muse, meditate, consider.
Contend—contest, vie, strive, argue, debate.
Contentment—happiness, satisfaction, gratification.
Continuation—duration, continuance.
Contract—shorten, curtail, reduce, abbreviate, condense, abridge.
Contrary—opposite, adverse, inimical.
Contrivance—invention, plan, scheme, device means.
Controversy—debate, disputation, argument.
Convenient—suitable, adapted, handy.
Convey—transport, bear, carry.
Convivial—sociable, agreeable, festal, social.
Copy—duplicate, specimen, model.
Correct—mend, rectify, better, reform.
Costly—valuable, precious, expensive.
Countenance—uphold, sanction, support, favor, encourage.
Couple—connect, join, unite.
Courage—heroism, firmness, valor, bravery, fearlessness.
Covering—hiding, concealing, sheltering, screening.
Coward—poltroon, dastard, sneak.
Crave—beg, supplicate, solicit, request, beseech, implore, entreat.
Crime—sin, evil, vice, wickedness, guilt.
Cross—splenetic, ill-tempered, petulant, fretful, peevish.
Cure—remedy, restore, heal.
Curse—imprecation, anathema, malediction,
Curtail—abridge. shorten, abbreviate, contract.
Custom—manner, usage, habit, practice.

D

Dainty—choice, delicate.
Dampness—humidity, wet, moisture.
Dark—dismal, gloomy, obscure.
Dead—lifeless, inanimate, deceased, still.
Dealing—commerce, trade, traffic.
Debase—degrade, lower, humble, abase.
Decay—consumption, decline.
Decent—comely, seemly, fit, becoming.
Decisive—conclusive, convincing, ending.
Decline—reject, refuse, decay.
Decoy—seduce, tempt, allure, entice, inveigle.
Dedicate—consecrate, set apart, devote.
Deed—feat, action, exploit, achievement.
Defect—blemish, want, imperfection, flaw.
Defender—protector, advocate, vindicator, pleader.
Deference—veneration, regard, respect.
Deficient—imperfect, lacking, wanting.
Defraud—cheat, swindle, deceive, rob, track.
Degree—class, rank, station, position.
Delay—postpone, protract, prolong, defer, hinder.
Delighted—grateful, pleased, charmed, joyful, glad.
Delinquent—offender, criminal, culprit.
Delude—beguile, mislead, cheat, deceive.
Demand—claim, ask, require.
Demonstrate—manifest, prove, show, evince.
Denote—mark, imply, signify.
Dependence—trust, reliance, confidence.
Deportment—behavior, demeanor, conduct, carriage.
Deprive—depose, strip, divest, hinder, prevent.
Deputy—delegate, agent, representative.
Deride—laugh at, mock, banter, ridicule.
Description—relation, detail, explanation, account, recital, illustration, narration.
Design—project, intend, sketch, plan, scheme, purpose.
Desist—discontinue, stop, leave off, cease.
Despicable—mean, outrageous, contemptible, hateful, vile, worthless.
Despotic—arbitrary, self-willed, absolute.
Destitute—bare, forlorn, forsaken, poor, scanty, seedy.
Desultory—loose, hasty, slight, roving.
Detail—account, recital, tale, description, narration.
Detect—discover, find, convict.
Determined—concluded, ended, firm, resolute, immovable, decided, fixed.
Detestable—hateful, loathsome, abominable, execrable.
Detriment—hurt, damage, injury, prejudice, loss, inconvenience, disadvantage.
Deviate—digress, err, wander, stray, swerve.
Devote—give, dedicate, set apart, apply, consecrate.
Devout—holy, religious, pious, prayerful.
Dialect—language, tongue, speech.
Die—expire, wither, perish, depart, languish.
Different—various, unlike, diverse.
Diffident—modest, retiring, hesitating, bashful, distrustful, fearful.
Diligent—perservering, laborious, attentive, industrious, active, assiduous.
Direct—show, sway, regulate, manage, guide, conduct.
Direction—command, order, address, subscription.
Disagree—quarrel, dissent, differ, dispute, vary.
Disappoint—fail, defeat.
Disavow—disown, deny, disclaim, repudiate.
Discard—cast off, discharge, dismiss.
Disclose—discover, reveal, divulge, promulgate.
Discord—dissention, contention, inharmony.
Discretion—judgment, prudence.
Disdain—scorn, pride, contempt, haughtiness, arrogance.
Disgrace—debase, degrade, abase, dishonor.
Disgust—loathing, nausea, dislike, aversion.
Dishonor—shame, disgrace.
Dismiss—divest, discharge, discard.
Disperse—scatter, deal out, spread, dissipate, distribute.
Display—parade, show, exhibit, ostentation.
Displease—offend, anger, vex.
Dispose—regulate, adapt, order, arrange.
Disseminate—scatter, spread, propagate, circulate.
Dissertation—discourse, essay, treatise, disquisition.
Distaste—aversion, disgust, contempt, dislike, loathing, dissatisfaction.
Distinguish—perceive, see, know, discern, discriminate.
Distress—affliction, misery, agony, pain, sorrow, anguish, sadness, suffering, grief.
District—county, circuit, locality, province, section, tract, region, territory.
Divide—part, share, separate, distribute.
Divulge—impart, disclose, publish, reveal, communicate.
Doctrine—wisdom, dogma, belief, principle, precept.
Doleful—awful, dismal, piteous, sorrowful, woeful, rueful.
Drag—pull, drag, bring, haul.
Dread—fear, apprehension.
Dress—array, attire, vestments, garments, apparel.
Dumb—silent, mute, still, inarticulate.
Dutiful—submissive, respectful, obedient.
Dye—stain, color, tinge.

E

Earn—gain, win, make, obtain, acquire.
Ease—rest, repose, quiet.
Eccentric—strange, singular, odd.
Ecstacy—happiness, joy, delight, rapture, transport, enthusiasm, elevation.
Edifice—fabric, building, structure.
Efface—expunge, erase, obliterate, destroy, eradicate.
Efficient—competent, effective, able, capable, effectual.
Effort—endeavor, trial, attempt, exertion, essay.
Elevate—raise, lift, hoist, exalt.
Eligible—worthy, fit, capable, suitable.
Emanate—issue, flow, arise, spring, proceed.
Embarrass—trouble, perplex, distress, entangle, puzzle.
Emblem—symbol, figure, type.
Emergency—exigency, casualty, necessity.
Emotion—feeling, tremor, agitation, excitement.
Empower—enable, commission, delegate, authorize.
Enchant—beguile, enrapture, charm, captivate, bewitch, fascinate.
Encomium—eulogy, praise.
Encroach—trespass, intrude, infringe.
Endeavor—effort, aim, exertion, attempt.
Endurance—fortitude, submission, patience, resignation.
Enemy—foe, opponent, antagonist, adversary.
Enervate—unnerve, enfeeble, deteriorate, weaken, debilitate.
Enjoyment—happiness, joy, pleasure, gratification.
Enlarge—extend, increase, lengthen, widen.
Enough—ample, plenty, sufficient, abundance.
Enrapture—charm, fascinate, attract, captivate, enchant.
Enterprise—business, adventure, attempt, undertaking,
Entice—tempt, allure, seduce, decoy.
Entirely—perfectly, wholly, completely.
Envy—jealousy, suspicion, grudging.
Epidemical—contageous, pestilential, catching.
Equal—uniform, adequate, commensurate.
Eradicate—root out, extirpate, exterminate.
Erase—expunge, cancel, efface, obliterate.
Error—fault, blunder, mistake.
Escape—elope, pass, avoid, fly, evade, elude.
Esteem—prize, love, respect, value, regard, appreciate.
Eulogy—encomium, panegyric.
Evade—escape, elude, shun, avoid, prevaricate.
Even—smooth, equal, plain, uniform, level.
Evidence—proof, witness, deposition, testimony.
Evil—wicked, bad, sinful.
Exact—enjoin, extort, demand, extract.
Exalted—high, sublime, dignified, magnificent, raised, refined, elevated.
Example—precedent, copy, pattern.
Exceed—transcend, surpass, improve, outdo, excel.
Except—but, object, besides, unless.
Excite—provoke, irritate, arouse, incite, awaken, stimulate.
Excursion—jaunt, trip, tour, ramble.
Execrable—hateful, detestable, contemptible, abominable.
Exercise—exert, practice, carry on.
Exhilarate—inspire, cheer, animate, enliven.
Exigency—necessity, emergeney.
Expectation—belief, anticipation, confidence, hope, trust.
Expedite—hurry, quicken, hasten, accelerate.
Expel—banish, exile, cast out.
Experience—knowledge, test, proof, experiment, trial.
Explain—show, elucidate, unfold.
Explicit—clear, plain, express, definite.
Explore—hunt, search, examine.
Extensive—comprehensive, wide, commodious large.
Exterior—outside, outward, external.
External—outward, exterior.
Extravagant—profuse, lavish, wasteful, prodigal.

F

Fabricate—invent, feign, falsify, frame, forge.
Fact—incident, circumstance.
Faculty—ability, power, talent, gift.
Failing—weakness, fault, foible, frailty, miscarriage, imperfection, misfortune.
Faith—fidelity, credit, trust, belief.
Falsehood—falsity, lie, untruth, fiction, fabrication, falsification.
Familiar—intimate, free, unceremonious.
Fanciful—ideal, hypochondriacal, whimsical, capricious, fantastical, imaginative.
Far—remote, distant.
Fashion—form, style, sort, practice, mode, custom, way, manner.
Fastidious—disdainful, particular, squeamish.
Favor—civility, benefit, grace, support.
Favorable—propitious, suitable, auspicious.
Faultless—guiltless, innocent, spotless, blameless.
Fearful—dreadful, timorous, horrible, afraid, awful, terrible.
Feasible—plausible, reasonable, practicable.
Feeble—infirm, weak, frail.
Feign—frame, forge, fabricate, invent.
Fertile—fruitful, productive, prolific, abundant.
Fervor—vehemence, warmth, zeal, heat, ardor.
Fetter—shackle, bind, chain.
Fiction—invention, untruth, lie, fabrication.
Fiery—hot, vehement, fervent, passionate, ardent, impulsive.
Finesse—stratagem, trick, artifice.
Firm—ready, partnership, strong, sturdy, solid, steady, immovable.
Fitted—suited, competent, qualified, adapted.
Flag—droop, faint, pine, decline, languish.
Flavor—odor, taste, fragrance, savor.
Fleeting—transient, swift, temporary, transitory.
Flexible—pliable, pliant, supple.

Fluctuate—hesitate, vary, waver, change, vacillate.
Fondness—affection, tenderness, love, attachment.
Forsake—relinquish, leave, desert, abandon, quit, abdicate.
Forbear—refrain, spare, abstain, pause.
Force—oblige, restrain, compel.
Forebode—augur, foretell, betoken, presage, prognosticate.
Forego—give up, quit, resign.
Foreigner—stranger, alien.
Forfeiture—penalty, fine.
Forgive—absolve, excuse, remit, acquit, pardon.
Form—rite, ceremony, shape, observance.
Fortunate—lucky, prosperous, successful.
Forward—immodest, progressive, ready, presumptuous, confident, bold, ardent, eager.
Fragile—brittle, tender, weak, frail.
Frailty—weakness, foible, failing, unsteadiness, instability.
Fraternity—brotherhood, society.
Fraught—loaded, filled.
Freak—whim, fancy, caprice, humor.
Free—deliver, liberate, rescue, clear, enfranchise, affranchise.
Freely—liberally, frankly, unreservedly, cheerfully, spontaneously, unhesitatingly.
Fresh—new, modern, cool, recent, novel.
Fretful—captious, angry, peevish, petulant.
Fright—terror, panic, alarm, consternation.
Frighten—terrify, alarm, daunt, scare, intimidate, affright.
Frivolous—futile, petty, trivial, trifling.
Frugal—careful, prudent, saving, economical.
Frustrate—defeat, disappoint, foil, hinder, nullify
Furious—impetuous, boisterous, violent, vehement.

G

Gain—obtain, profit, get, acquire, attain, win.
Gale—breeze, hurricane, storm, tempest.
Gallantry—valor, bravery, courage.
Gay—dashing, cheerful, showy, fine, merry, sprightly.
Generally—commonly, frequently, usually.
Genteel—polite, cultured, mannerly, refined, polished.
Gentle—tame, peaceable, mild, quiet, meek.
Germinate—sprout, vegetate, grow, bud, shoot.
Gesture—action, attitude, motion, posture.
Giddiness—flightiness, levity, lightness, volatility.
Give—impart, yield, consign, grant, confer, bestow.
Glance—look, glimpse, sight.
Glitter—glisten, radiate, shine, glare, sparkle.
Gloom—dark, melancholy, morose, sullen, sad, cloudy, dull, dim.
Graceful—comely, neat, becoming, genteel, elegant.
Grant—sell, yield, give, bestow, confer, cede, concede.
Grateful—thankful, pleasing, agreeable, delicious.
Grave—sedate, thoughtful, important, solemn, slow, serious.
Greediness—ravenousness, covetousness, cagerness, rapacity, voracity.
Grieve—bemoan, mourn, sorrow, lament, hurt, afflict.
Group—collection, assemblage, cluster.
Guarantee—vouch for, secure, warrant.
Guard—protect, watch, defend, shield.
Guest—visitant, stranger, visitor.
Guilty—depraved, debauched, sinful, criminal, wicked.

H

Habit—custom, habitude, guise.
Hale—strong, hearty, robust, sound.
Happiness—contentment, bliss, luck, felicity.
Harbinger—precursor, forerunner, messenger.
Hardened—unfeeling, callous, obdurate.
Hardly—scarcely, with difficulty, barely.
Harm—evil, mishap, injury, ill, hurt, misfortune, damage.
Harmony—unison, accordance, melody, concord, agreement.
Hasten—hurry, quicken, expedite, accelerate.
Hasty—rash, passionate, quick, angry, cursory.
Hate—dislike, abominate, loathe, abhor, detest, abjure.
Haughtiness—vanity, arrogance, self-conceit. pride, disdain.
Hazard—trial, peril, danger, venture, chance, risk.
Heal—cure, remedy, restore.
Hear—harken, overhear, watch, attend, listen.
Heaviness—sorrow, gravity, dejection, weight, gloom.
Heighten—raise, aggravate, improve, advance.
Heinous—wicked, atrocious, simple, flagrant.
Help—provide, support, success, serve, aid, relieve, assist.
Heroic—bold, courageous, intrepid, brave, noble, valiant, fearless.
Hesitate—demur, pause, stammer, doubt, falter, wait, scruple, delay.
Hideous—awful, grisly, grim, ghastly, frightful, horrible.
High—tall, lofty.
Hinder—stop, thwart, oppose, prevent, retard, interfere, obstruct, impede, embarrass.
Hollow—empty, vacant.
Honor—exalt, venerate, reverence, dignify, esteem, respect, adorn, revere.
Hopeless—dejected, despairing, desponding.
Hostile—contrary, opposite, warlike, repugnant, unfriendly.
House—domicile, quorum, dwelling, race, home, family, habitation.
However—notwithstanding, still, yet, but, nevertheless.
Huge—vast, enormous, immense.
Humanity—benevolence, benignity.
Hurry—expedite, hasten, precipitate.
Hypocrisy—pretense, deceit, dissimulation.

I

Idea—notion, perception, thought, conception, imagination.
Ignorant—untaught, illiterate, unlearned, unlettered, uninformed, unskilled.
Illusion—deception, mockery, falsity.
Imbecility—weakness, impotence, debility, infirmity, languor, feebleness.
Imitate—copy, ape, follow, mimic.
Immediately—directly, instantly.
Immense—vast, huge, enormous, prodigious, unlimited.
Impair—lessen, injure, decrease, weaken.
Impatient—eager, restless, hasty, uneasy.
Impede—delay, hinder, obstruct, retard.
Impediment—obstacle, hindrance, obstruction.
Impending—imminent, threatening,
Imperious—tyrannical, overbearing, lordly, haughty, domineering.
Impetuous—hasty, forcible, rough, vehement, violent, boisterous.
Imply—involve, mean, infer, denote, signify.
Importunity—solicitation.
Imprecation—anathema, curse, malediction, execration.
Impute—ascribe, attribute, charge.
Inactive—sluggish, lazy, idle, inert, slothful, drowsy.
Inattentive—remiss, negligent, dilatory, careless, heedless, thoughtless, inadvertant.
Incident—circumstance, event, contingency, occurrence, adventure.
Inclination—disposition, bent, prepossession.
Incompetent—unsuitable, inapt, inadequate, incapable, insufficient.
Increase—accession, addition, augmentation.
Indicate—Show, reveal, point out, mark.
Indigence—penury, poverty, want, need.
Indiscretion—folly, injudiciousness, imprudence.
Indistinct—dark, confused, doubtful, ambiguous.
Inevitable—certain, unavoidable.
Inexpedient—unfit, inconvenient, unsuitable.
Infamous—outrageous, scandalous.
Inference—conclusion, deduction.
Infested—annoyed, disturbed, plagued, troubled.
Influence—persuasion, authority, sway, power, credit.
Infringe—invade, intrench, encroach, intrude.
Ingenuity—talent, capacity, skill, genius, invention.
Inherent—inbred, inborn, innate.
Iniquitous—nefarious, unjust, wicked, evil.
Injure—harm, deteriorate, hurt, impair, damage.
Innate—natural, inborn, inherent, imbued.
Inordinate—immoderate, irregular, excessive, intemperate.
Inquisitive—curious, prying, anxious, inquiring.
Insensibility—dullness, torpor, imperceptibility, apathy, indifference, stupidity.
Insignificant—worthless, unimportant, trivial, meaningless, inconsiderable.
Insinuate—suggest, hint, intimate.
Inspire—animate, suggest, exhilarate, enliven, invigorate, cheer.
Instill—infuse, sow, implant.
Insufficient—inadequate, unable, incapable, unfit, incompetent, unsuitable.
Integrity—purity, honesty, truthfulness, probity, uprightness.
Intellect—understanding, talent, capacity, ability, genius.
Intemperate—immoderate, inordinate, excessive.
Intercede—interpose, mediate, interfere.
Intermission—vacation, interruption, cessation, rest, stop.
Interpose—mediate, intermeddle, intercede, interfere.
Interrogate—question, inquire, examine.
Intervening—coming between, intermediate, interposing.
Intoxication—infatuation, inebriety, drunkenness.
Intrepid—fearless, brave, daring, bold, valiant, undaunted, courageous.
Introductory—preliminary, previous, prefatory.
Intrust—confide, commit.
Invade—intrench, infringe, attack, enter, encroach.
Invalidate—weaken, overthrow, destroy, injure, nullify.
Invent—discover, devise feign, fabricate, conceive, frame.
Investigation—research, search, scrutiny, examination, inquiry.
Invigorate—restore, fortify, strengthen.
Invite—call, summon, bid.
Irascible—irritable, angry, hot, hasty, fiery.
Irksome—troublesome, vexatious.
Irrational—silly, foolish, absurd, unreasonable.
Irregular—intemperate, disorderly, inordinate.
Irruption—invasion, opening, inroad.

J

Jade—harass, weary, tire, dispirit, wench.
Jealousy—envy, suspicion, emulation.
Jest—fun, joke, sport.
Jocund—joyful, light-hearted, mirthful, merry, vivacious, gay, sprightly, sportive.
Joke—rally, sport.
Journey—trip, voyage, tour.
Judgment—discernment, sagacity, intelligence, doom, decision, sentence, opinion, discrimination.
Justify—clear, maintain, defend, absolve, excuse.
Justness—correctness, propriety, equity, accuracy, exactness.

K

Keen—shrewd, sharp, acute, cutting, piercing, penetrating.
Keep—guard, sustain, hold, reserve, support, maintain, detain, retain.
Kind—bland, benignant, lenient, courteous, gentle, indulgent, compassionate, tender, affable.
Kind—sort, way, genus, species, manner, race, class.
Knavish—deceitful, dishonest.
Knowledge—perception, acquaintance, erudition, understanding, skill, learning.

L

Labor—toil, exert, drudge, strive.
Lack—want, need.
Language—tongue, speech, dialect, idiom.
Languid—weary, faint, dull, drooping, exhausted.
Lassitude—prostration, enervation, fatigue, languor, weariness.
Last—latest, end, ultimate, final, hindermost.
Latent—unseen, secret, hidden.
Laughable—droll, comical, ridiculous, mirthful.
Lazy—indolent, inactive, idle, inert, slothful.
League—alliance, confederacy.
Lean—waver, totter, incline, bend.
Leave—resign, relinquish, bequeath, abandon.
Lengthen—continue, protract, extend, draw out.
Lenity—clemency, mercy.
Let—allow, permit, hire, leave, suffer.
Level—plain, flat, even, smooth.
Liable—exposed, responsible, subject.
Liberate—free, deliver, release.
Lie—untruth, falsehood, fiction, fabrication, deception.
Life—briskness, vitality, being, energy, vivacity.
Lift—exalt, erect, raise, hoist, elevate.
Like—similar, resembling, uniform, probable.
Liking—inclination, fondness, affection, attachment.
Linger—tarry, lag, delay, wait, saunter, hesitate, loiter.
Listen—overhear, attend, hearken, hear.
Live—dwell, reside, subsist, abide, exist.
Load—weight, encumber, clog, burden.
Lodge—shelter, harbor, entertain, accommodate.
Loiter—lag, saunter, tarry, linger.
Long—desire, hanker.
Look—see, view, inspect, behold, appearance.
Loquacious—talkative, garrulous.
Lot—doom, fortune, share, fate, destiny, portion.
Loud—noisy, vehement, clamorous, turbulent, vociferous.
Lovely—attractive, beautiful, amiable, elegant, fine, handsome, charming, delightful.
Lover—wooer, suitor, beau.
Low—despicable, debased, humble, dejected, base, abject.
Lucky—successful, fortunate, prosperous.
Lunacy—derangement, mania, insanity, madness.
Luxuriant—exuberant, voluptuous, excessive, abundant.
Luxury—abundancy, excess, elegance, profusion.

M

Magisterial—august, prosperous, stately, majestic, dignified.
Magnitude—bulk, size, greatness.
Majestic—august, stately, dignified.
Malice—grudge, spite, rancor, pique.
Mandate—order, charge, injunction, command.
Manifest—apparent, plain, open, clear, obvious, evident.
Margin—border, rim, brink, verge, edge, brim.
Mark—imprint, observe, show, brand, impress, stamp.
Martial—soldier-like, military, warlike.
Massive—ponderous, heavy, large, bulky.
Mature—complete, ripe, perfect.
Mean—sordid, niggardly, penurious, low, miserly, abject, despicable.
Meanwhile—meantime, intervening, interim.
Meddle—touch, interfere, interpose, interrupt.
Meditate—contemplate, muse.
Meek—soft, humble, gentle, mild.
Meeting—congregation, company, auditory, assembly.
Melody—harmony, concord, happiness, unison.
Memory—reminiscence, recollection, remembrance.

Merchant—tradesman, trader.
Merciless—hard-hearted, pitiless, cruel, unmerciful.
Merry—lively, gay, sprightly, sportive, cheerful, happy, vivacious, mirthful.
Metaphor—trope, symbol, emblem, allegory, similitude.
Mighty—great, potent, strong, powerful.
Mindful—heedful, attentive, regardful, observant.
Miracle—prodigy, marvel, wonder.
Mischief—harm, hurt, damage, misfortune, injury.
Misfortune—calamity, ill-luck, harm, mishap, disaster.
Misuse—pervert, ill-treat, abuse, misapply.
Mix—mingle, blend, confound.
Model—pattern, mold, sample, copy, specimen.
Modern—recent, new, novel, fresh, late.
Modify—re-arrange, alter, moderate, change, extenuate.
Mollify—ease, soften, assuage, appease, moderate, mitigate.
Morose—gloomy, sour, forbidding, sullen, peevish.
Motive—incentive, cause, reason, principle.
Mourn—sorrow, grieve, bewail, lament, bemoan.
Multitude—crowd, throng, swarm.
Murmur—complain, repine.
Mutable—irresolute, wavering, changeable, fickle, unstable, inconstant, variable, unsteady.
Mutinous—turbulent, seditious, insubordinate.

N

Naked—simple, unclothed, uncovered, nude, exposed.
Narrative—account, tale, story.
Nasty—filthy, foul.
Nautical—marine, naval, maritime.
Near—adjoining, adjacent, close, contiguous.
Need—indigence, poverty, penury, want.
Nefarious—wicked, evil, unjust, wrong, iniquitous.
Nevertheless—however, yet, notwithstanding.
Nice—exact, particular, delicate.
Noble—grand, exalted, distinguished, great, elevated, illustrious.
Noted—notorious, eminent, renowned, celebrated, distinguished, conspicuous, illustrious.
Notion—sentiment, perception, thought, whim, conception, opinion, idea.
Notwithstanding—in spite of, yet, nevertheless, however.

O

Obdurate—inflexible, obstinate, inpenitent, hardened, unfeeling, callous, insensible.
Object—subject, end, aim, purpose, oppose.
Oblige—engage, bind, force, gratify, coerce, favor, compel, please.
Obscure—abstruse, concealed, hidden, indistinct, dark, dim, uncertain, difficult.
Observant—regardful, attentive, watchful, mindful.
Obsolete—disused, worn out, antiquated, ancient, old, old-fashioned.
Obstinate—headstrong, resolute, stubborn.
Obtain—gain, get, win, procure, secure, acquire, earn.
Obviate—prevent, preclude, avoid.
Occasional—frequently, casual.
Occupy—use, hold, keep, possess.
Odd—singular, eccentric, strange, uneven.
Offense—injury, crime, transgression, outrage, trespass, misdeed, wrong, insult.
Officious—busy, active, forward, intrusive, obtrusive.
Omen—presage, prognostic, sign.
Open—disclose, reveal, unlock, unravel.
Operation—agency, performance. action.
Opinion—belief, sentiment, notion, idea.
Opponent—antagonist, adversary, opposer, foe, enemy.
Opprobrious—reproachful, insulting, sourrilous, offensive, insolent, scandalous, abusive.
Option—choice, selection.
Opulence—affluence, wealth, riches.
Ordain—prescribe, invest, appoint, order.
Order—mandate, command, injunction, precept.
Ordinary—usual, common, general.
Original—primary, first, pristine, primitive.
Ostentation—show, boast, display, parade.
Outlive—survive.
Outward—extraneous, apparent, extrinsic.
Overbearing—repressive, haughty, lordly, impertinent.
Overflow—fill, inundate, abound, deluge.
Overwhelm—upturn, subdue, crush, overthrow, powerful.

P

Pacify—soothe, still, calm, quiet, conciliate.
Pain—hurt, afflict, distress, torture, suffer, torment.
Pair—couple, brace, two.
Palpable—apparent, plain, perceptible, gross, discernible.
Pang—sorrow, torment, anguish, torture, agony, distress.
Parade—show, ostentation.
Pare—strip, peel.
Part—concern, portion, piece, share, action, division.
Particularly—chiefly, mainly, principally, distinctly, especially, specifically.
Partner—associate, coadjutor, accomplice, colleague.
Passionate—excitable, hot, angry, hasty, irascible.
Pathetic—affecting, moving, touching.
Patience—endurance, fortitude, resignation.
Pay—salary, wages, stipened.
Penalty—punishment, chastisement, fine, pain, forfeiture.
Penitence—repentance, remorse, compunction, contrition.
Penury—poverty, need, want, distress, indigence.
Perceive—observe, discern, distinguish.
Perfect—done, complete, finished.
Perforate—bore, penetrate, pierce.
Perfume—smell, odor, scent, fragrance,
Perish—die, decay.
Permit—tolerate, yield, allow, consent, suffer, admit.
Perpetrate—commit.
Perplex—bewilder, confuse, involve, annoy, puzzle, harass, molest, entangle, embarrass.
Persist—pursue. prosecute.
Persuade—prevail upon, influence, induce, exhort, urge, entice.
Pestilential—epidemical, contagious, infectious, mischevious, destructive.
Petulant—peevish, cross, captious, fretful.
Pious—religious, devout, godly, spiritual, holy.
Pique—spite, grudge, malice, rancor, dislike, offense.
Place—post, site, ground, position, spot.
Plague—perplex, embarrass, annoy, tantalize, vex, importune, torment.
Plan—scheme, contrivance, device, design, project, stratagem, arrangement.
Play—game, sport.
Please—delight, satisfy, humor, gratify.
Pledge—hostage, deposit, security, pawn, earnest.
Pliant—limber, bending, lithe, yielding, pliable, supple.
Plight—state, condition, situation, case, conjecture.
Polite—well-bred, civil, courteous, polished, affable, genteel, refined.
Politic—careful, prudent, wise, artful, cunning.
Pompous—stately, showy, ostentatious, lofty, dignified.
Portion—part, share, piece, division, quantity, fortune.
Possess—hold, have, keep, occupy, enjoy.
Posture—gesture, action, figure, position, attitude.
Poverty—need, suffering, want, penury, indigence.
Practice—habit, custom, manner, use, form, style.
Prayer—suit, request, entreaty, application, supplication.
Precedence—superiority, priority, preference.
Precept—rule, injunction, maxim, principle, law, mandate, command.
Precious—costly, expensive, valuable, choice, rare.
Precise—exact, accurate, nice, careful, particular.
Predicament—position, plight, condition, situation.
Predominant—controlling, supreme, prevailing prevalent.
Preference—priority, advancement, choice.
Prejudice—injury disadvantage, bias, hurt.
Prepare—qualify, make ready, equip, arrange, fit.
Prerogative—immunity, privilege.
Preserve—maintain, save, uphold, protect, spare.
Presume—suppose, believe, guess, think, surmise.
Pretext—pretension, excuse, pretense.
Pretty—agreeable, lovely, fine, beautiful.
Prevent—hinder, obstruct, impede, preclude, obviate.
Price—expense, worth, cost, value, charge.
Pride—vanity, conceit, arrogance, assurance, presumption, haughtiness, insolence.
Primary—original, pristine, first, clemental.
Print—mark, impress, stamp.
Priority—precedence, pre-eminence, preference.
Privacy—solitude, loneliness, seclusion, secrecy.
Prize—esteem, value, reward.
Probity—uprightness, integrity, reliability, veracity.
Proclaim—publish, tell, declare, announce, advertise.
Procure—acquire, gain, obtain, get.
Prodigious—astonishing, large, great, vast, enormous.
Profession—employment, calling, vocation, work, business.
Profit—advantage, benefit, gain, lucre.
Profuse—wasteful, extravagant, lavish, prodigal.
Prohibit—proscribe, interdict, forbid.
Prolific—fertile, fruitful, productive.
Prolong—delay, extend, protract, postpone, retard.
Promise—engagement, agreement, pledge, word, obligation.
Prompt—ready, quick, assiduous, active.
Proof—argument, evidence, testimony.
Propensity—inclination, tendency, proneness, liking.
Propitious—auspicious, favorable.
Proportionate—adequate, commensurate, equal.
Proprietor—owner, master, possessor.
Prospect—landscape, view, survey.
Prosperous—lucky, successful, fortunate flourishing.
Protract—retard, prolong, delay, postpone, withhold.
Prove—evince, manifest, demonstrate.
Provide—furnish, prepare, procure, supply.
Proviso—condition, stipulation, requirement.
Prudence—carefulness, discretion, judgment, wisdom.
Prying—inquisitive, curious.
Puerile—boyish, childish, infantile, juvenile.
Punctual—particular, prompt, exact, nice.
Purchase—procure, buy.
Puzzle—bewilder, confound, entangle, perplex.

Q

Quack—empiric, impostor, charlatan, pretender.
Qualified—fit, adapted, capable, competent.
Quality—attribute, property.
Query—interrogatory, inquiry, question.
Questionable—doubtful, suspicious.
Quiet—repose, rest, calm, tranquility, ease, still.
Quit—relinquish, depart, resign, forsake, leave.
Quota—share, rate, proportion.

R

Race—family, generation, lineage, breed, course.
Rage—fury, indignation, anger.
Ramble—stroll, rove, roam, wander, range.
Rank—degree, position, class, place, order.
Rapacious—ravenous, greedy, voracious.
Rapture—delight, ecstacy, joy, transport.
Rash—hasty, thoughtless, impulsive, violent, adventurous.
Ravenous—rapacious, greed, voracious.
Reach—extent, stretch.
Real—true, actual, certain, positive, genuine.
Reason—proof, argument, purpose, motive, origin, cause.
Rebellion—sedition, revolt, insurrection.
Recall—recant, retract, revoke, abjure.
Recede—retrograde, fall back, retire, retreat.
Reciprocal—mutual.
Recite—rehearse, repeat, narrate.
Reclaim—recover, correct, reform.
Recollection—memory, remembrance.
Reconcile—conciliate, propitiate.
Reoruit—retrieve, recover, repair, replace.
Redeem—rescue, ransom, recover, restore.
Refer—suggest, intimate, hint, propose, allude.
Reform—amend, better, correct, improve.
Refrain—forbear, spare, abstain, forego.
Regale—entertain, gratify, feast, relish.
Region—quarter, country, section, district.
Regulate—rule, dispose, adjust, control, govern.
Reject—deny, repel, refuse, decline.
Relieve—succor, assist, mitigate, aid, help, support.
Relish—flavor, taste, enjoy.
Remain—stay, tarry, continue, abide, sojourn.
Remark—comment, observation, note.
Remiss—negligent, heedless, thoughtless, careless.
Remnant—residue, remainder, rest.
Renew—revive, renovate, refresh.
Renown—fame, reputation, celebrity.
Reparation—restitution, amends, restoration.
Repeat—rehearse, recite, detail.
Replenish—supply, fill, refill.
Repose—quiet, sleep, ease, rest.
Repugnance—dislike, aversion, hatred.
Request—demand, beseech, entreat, ask.
Research—inquiry, study, examination.
Residence—abode, home, house, dwelling.
Resign—forego, yield, renounce, abdicate.
Resist—endure, oppose, withstand.
Resort—haunt, frequent, visit.
Respectful—civil, dutiful, obedient.
Response—reply, rejoinder, answer.
Rest—ease, quiet, repose.
Restrain—repress, restrict, suppress, confine.
Result—event, effect, issue.
Retard—defer, delay, hinder, prevent.
Retract—take back, revoke, recall, annul.
Reveal—disclose, divulge, expose, impart.
Revere—adore, venerate, worship, reverence.
Revive—refresh, renew, renovate, enlighten.
Reward—satisfaction, recompense.
Ridicule—laugh at, satire, irony.
Right—proper, honest, correct, direct.
Rigorous—rigid, rough, severe, harsh.
Rite—observance, form, ceremony, custom.
Roam—rove, wander, range, ramble.
Rough—harsh, uncivil, rude, uncouth.
Route—way, path, road, course.
Rugged—abrupt, rough.

S

Sacred—devoted, divine, holy.
Sagacity—discernment, penetration, perception, acuteness.
Salute—accost, address.
Sapient—wise, discreet, sage.
Satire—irony, sarcasm, burlesque.
Saucy—rude, insolent, impudent.
Saying—by-word, maxim, adage, proverb.
Scarce—unusual, singular, rare.
Scent—perfume, odor, fragrance, smell.

Scoff—sneer, gibe, jeer, ridicule.
Scornful—contemptuous, disdainful.
Scrutinize—investigate, search, examine.
Search—inquiry, scrutiny, pursuit.
Seclusion—privacy, quietude.
Secret—quiet, hidden, still, latent.
Secure—certain, safe, sure.
Sedate—quiet, composed, still, calm.
See—examine, view, look, observe.
Select—choose, pick.
Sensitive—keen, appreciative.
Sentiment—feeling, opinion, notion, expression.
Serene—placid, calm.
Settled—conclusive, decided, confirmed.
Several—diverse, different, sundry, various.
Shake—totter, shiver, agitate.
Shame—ignominy, dishonor, disgrace.
Shape—mold, fashion, form.
Sharpness—cunning, acuteness, keenness.
Shine—glare, glisten, glitter, gleam.
Shocking—terrible, dreadful, horrible.
Shorten—curtail, lessen, reduce, abridge.
Showy—gay, gaudy, fine, graud.
Shudder—tremble, quake, shake.
Sickly—sick, ill, unwell, diseased.
Signify—express, imply, utter, declare.
Silent—mute, speechless, dumb, still.
Similarity—likeness. similitude, resemblance,
Simply—merely, solely, only.
Sincere—honest, frank, true, plain.
Situation—plight, locality, place, position.
Slander—vilify, defame, detract, asperse.
Slender—slim, thin, fragile, slight.
Slow—dilatory, tedious. tardy, dull.
Smooth—mild, easy, bland, even.
Snarling—snappish, waspish, surly.
Sneer—jibe, jeer, scoff.
Social—familiar, sociable, convivial.
Soft—yielding, pliant, mild, flexible.
Solemn—serious, grave.
Solid—firm, hard, enduring, fixed.
Soothe -compose, quiet, calm, assuage.
Sort—species, kind, order.
Sour—acid, sharp, acrimonious, tart.
Spacious—capacious, ample, large.
Species—kind, sort, order, class.
Specimen—pattern, sample, model, copy.
Speech—address, sermon, oration, lecture.
Sphere—globe, circle, orb.
Spite—malice, hatred, grudge.
Sport—recreation, pastime, game, play.
Spread—sow, disperse, scatter, diffuse.
Sprinkle—bedew, scatter, water.
Stability—firmness, fixedness, continuity.
Stammer—stutter, falter, hesitate.
Stare—gaze, gape.
Station—situation, place, post, position.
Sterility—unfruithfulness, barrenness.
Still—pacify, lull, quiet, appease,
Stop—check, hinder, delay, rest.
Straight—immediate, direct.
Stratagem—artifice, cheat, finesse, fine work.
Strife—contest, dissension, discord.
Stroll—ramble, rove, range.
Sturdy—firm, robust, strong.
Subdue—surmount, subject, conquer, overcome.
Subjoin—annex, attach, affix, connect.
Submissive—obedient, humble, compliant.
Substance—support, livelihood, sustenance.
Substitute—agent, change, exchange.
Subtract—deduct, withdraw, take from.
Successful—prosperous, fortunate, lucky.
Succor—defend, relieve, assist, help.
Suffer—endure, allow, permit, bear.
Sufficient—adequate, plenty, enough.
Suggest—propose, hint, allude.
Suitor—beau, lover, wooer.
Summon—cite, bid, convoke, call.
Superficial—slight, flimsy, shallow.
Supplicate—implore, entreat, ask, beg.
Sure—reliable, certain, confident.
Surmount—subdue, conquer, overcome.
Surprise—amazement, wonder, admiration.
Surround—encircle, enclose, encompass.
Suspense—doubt, hesitation.
Sustain—maintain, carry, support, bear.
Swarm—crowd, throng, multitude.
Symbol—emblem, type, figure.
Sympathy—compassion, agreement, condolence.
System—order, method.

T

Tale—anecdote, story.
Talk—conference, lecture, sermon.
Taste—relish, savor, flavor.
Tedious—tardy, tiresome, slow.
Temper—disposition, mood, humor.
Temporal—secular, muudane, wordly.
Tempt—allure, decoy, induce, entice.
Tenderness—fondness, affection, love.
Terms—language, expressions, words, condition.
Terrible—horrible, awful, terrific, fearful.
Test—standard, proof, trial, experience.
Testimony—proof, evidence.
Think—surmise, consider, imagine, ponder.
Thought—conceit, idea, fancy, reflection.
Thoughtless—unthinking, hasty, foolish, careless.
Throw—fling, hurl, heave, cast.
Time—epoch, era, season, date.
Timid—afraid, bashful, fearful.
Title—claim, name, appellation.
Tolerate—allow, suffer, permit.
Total—sum, gross, entire, whole.
Tour—trip, round, journey, jaunt.
Trade—occupation, traffic, dealing,
Tranquility—calm, quiet, peace, stillness.
Transcend—surpass, exceed, outdo, excel.
Transient—short, brief, transitory.
Tremendous—dreadful, terrific, fearful, terrible.
Trespass—transgression, violation, misdemeanor, offense.
Trip—voyage, journey, excursion, jaunt, ramble, tour.
True—upright, honest, plain, candid, reliable sincere.
Try—attempt, endeavor.
Type—mark, illustration, emblem, figure, symbol.

U

Umpire—arbiter, arbitrator, judge.
Unbounded—infinite, unlimited, boundless.
Uncertain—precarious, dubious, doubtful.
Unconquerable—insuperable, insurmountable, invincible.
Undaunted—intrepid, courageous, bold, fearless.
Under—subordinate, subject, lower, beneath.
Unfaithful—perfidious, untruthful, treacherous, faithless.
Unhandy—awkward, ungainly, clumsy, uncouth.
Uniform—same, even, equal, alike.
Unite—combine, connect.
Unlike—different, dissimilar, distinct.
Unmerciful—cruel, hard-hearted, merciless.
Unravel—reveal, unfold, extricate, disentangle.
Unruly—ungovernable, unmanageable, refractory.
Unspeakable—unutterable, ineffable, inexpressible.
Untruth—falsehood, lie, falsity.
Upbraid—reproach, reprove. blame, censure.
Urbanity—civility, courtesy, suavity, affability.
Urgent—pressing, earnest, importunate.
Use—utility, advantage, custom, service, usage, habit.
Utterly—fully, completely, perfectly, wholly.

V

Vacant—unused, void, utterly, devoid, empty.
Vain—conceited, ineffectual, fruitless, useless.
Vanity—conceit, pride, arrogance, haughtiness.
Variation—vicissitude,deviation, variety,change.
Various—diverse, different, sundry, several.
Venal—hireling, mercenary.
Venture—risk, hazard.
Verbal—vocal, oral.
Vestige—track, evidence, trace, mark.
Vicinity—section, locality, nearness, neighborhood.
Vile—mean, base.
Vindicate—depend, protect.
Virtue—efficacy, chastity, goodness, purity.
Vivid—bright, lucid, clear.
Vouch—attest, assure, protest, warrant, aver.
Vulgar—mean, low, ordinary, common.

W

Wages—allowance, salary, pay, hire, stipulation.
Wan—pallid, pale.
Want—lack, indigence, poverty, need.
Warlike—martial, military.
Warning—caution, notice, monition, advice.
Wasteful—prodigal, profuse, lavish, extravagant.
Way—route, means, road, fashion, plan, course, method.
Wealth—riches, affluence, opulence.
Wedding—nuptials, marriage.
Welcome—acceptable, desirable, grateful, agreeable.
Whimsical—fantastical, fanciful, capricious.
Wily—crafty, cunning, subtle, artful, sly.
Win—gain, obtain, earn, acquire.
Wisdom—understanding, foresight, knowledge.
Woeful—doleful, rueful, piteous.
Worthy—meritorious, deserving, estimable.
Writer—scribe, author.
Wrong—injury, injustice.

Y

Yearly—annually.
Yet—notwithstanding, but, still, nevertheless, however.
Youthful—juvenile, adolescent.

Z

Zeal—enthusiasm, warmth, fervor, ardor.
Zealous—warm, enthusiastic, earnest, anxious, fervent, ardent.

RAILWAY SIGNALS.

One pull of bell-cord signifies "stop."
Two pulls mean "go ahead."
Three pulls signify "back up."
One whistle signifies "down brakes."
Two whistles mean "off brakes."
Three whistles signify "back up."
Continued whistles indicate "danger."
Rapid short whistles "a cattle alarm."

A sweeping parting of the hands, on a level with the eyes, signifies "go ahead."

A slowly, sweeping meeting of the hands, over the head, means "back slowly."

Downward motion of the hands, with extended arms, signifies "stop."

Beconing motion of one hand, indicates "back."

A red flag waved up the track, signifies "danger."

A red flag standing by the roadside, means "danger ahead."

A red flag carried on a locomotive, signifies "an engine following."

A red flag raised at a station, is a signal to "stop."

A lantern swung in a circle, signifies "back the train."

A lantern at night raised and lowered vertically, is a signal to "start."

A lantern swung at right angles across the track, means "stop."

INTERESTING INDUSTRIAL ITEMS.

Magazines that cost 35 cents here are sold in England for 24 cents.

In Sweden a new elevator loads a 2,500-ton vessel with iron ore in a day.

New England shoe firms are having most of their work done in country factories.

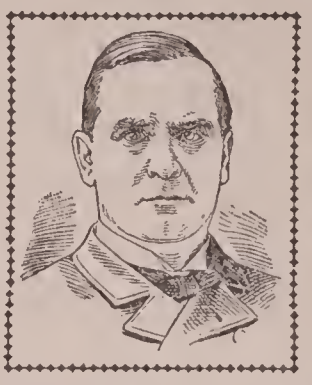
Crefeld, Holland, has 110,000 people, and 50,000 are silk-workers, all employed in the own homes.

CAPACITY OF A FREIGHT CAR.

A load, nominally, is 20,000 pounds. The following number can be carried: Whisky, 60 barrels; Salt, 70 barrels; Lime 70 barrels; Flour 90 barrels; Eggs, 130 to 160 barrels; Flour, 200 sacks; Wood, 6 cords; Cattle, 18 to 20 head; Hogs, 50 to 60 head; Sheep, 80 to 100 head; Lumber 6,000 feet; Barley, 300 bushels.

United States Tariff Law...

As Enacted July 24, '97



N. DINGLEY

COMPARED WITH THE

McKinley Tariff (1890) and Wilson Tariff (1894)

W. L. WILSON

HISTORY OF THE 1897 TARIFF

The Tariff Bill, known generally as the "Dingley Bill," became a law by signature of the President at 4:06 p. m. on July 24, 1897. It was in force as to the collection of customs duties from 12:01 a. m. on the same day.

It was just one hour from the conclusion of the roll call in the Senate that the President placed his signature to the bill. In those sixty minutes the bill over which Congress worked for more than four months went to the House to be signed in open session by Speaker Reed, thence back to the Senate for the signature of Vice-President Hobart, and thence to the White House, where it was signed by President McKinley.

It thus became a part of the statutes, and the Wilson bill was no more. No tariff bill ever became a law so soon after the people had given their verdict at the polls, and no tariff bill ever received the approval of the President so soon after its adoption by Congress.

President McKinley did not have to deliberate over the Dingley bill. He called the Fifty-fifth Congress in extraordinary session to pass this bill, ten days after he was inaugurated President (March 15, 1897). He kept close watch on its course through Congress. He consulted with the Committee on Ways and Means, and knew the scope of the bill before it was introduced in the House. He was consulted about the amendments proposed in the Senate. He was kept acquainted with every step taken, and when the bill was finally agreed upon in conference he was able to study the whole scope of the proposed law in the printed copy. He was therefore ready to affix his signature to this new tariff bill as soon as it could have the sanction of the Senate and be laid before him. He had only to look for the signatures of Speaker Reed and Vice-President Hobart to know that this was the official copy of the Dingley bill to give it his signature and clothe it with the authority of law. He did that just sixty minutes after the conclusion of the final roll call on the conference report in the Senate.

It had taken Congress exactly **four months and nine days** to prepare and enact this most complicate piece of legal machinery called a Tariff Law. To the energy and constant vigilance of Speaker Reed is due a great part of the credit for this unequalled legislative achievement. President Cleveland was inaugurated March 4, 1893, and it was only in October, 1894, that the Wilson Tariff Bill became a law without the President's signature.

THE NEW TARIFF

Schedule A—Chemicals, Oils, and Paints.

Articles.	Dingley Law.	Wilson Law.	McKinley Law
Acids—			
Acetic, not exceeding specific gravity 1.047	¾c lb	20 p c	1½c
Exceeding that	2c	20 p c	4c
Boracic	5c	3c	3c
Chromic	5c	4c	6c
Lactic	5c	20 p c	20 p c
Citric	7c	25 p c	10c
Salicylic	10c	20 p c	20 p c
Sulphuric	¼c	Free	¼c
Tannic	50c	60c	75c
Gallic	10c	20 p c	20 p c
Tartaric	7c	20 p c	10c
All other acids	25 p c	.....	.....
All alcoholic perfumery and toilet preparations containing alcohol, and alcoholic compounds not provided for	60c & 45 p c	$2 gal & 50 p c	$2 gal & 25 p c
Alkalies, alkaloids, distilled, essential, expressed and rendered oils, and combinations of them, and chemical compounds not otherwise provided for	25 p c	20 p c	20 p c
Alumina	6-10c	4-10c	6-10c
Alum, alum cake, etc	½c	4-10c	6-10c
Ammonia, carbonate of	1½c	20 p c	1¾c
Muriate of	¾c	10 p c	¾c
Sulphate of	3-10c	20 p c	½c
Argols containing not more than 40 pc bitartrate of potash	1c	Free	Free
Containing more than 40 p. c.	1½c	Free	Free
Partly refined, containing not more than 90 p. c.	4c	20 p c	4c
Containing more than 90 p. c.	5c	20 p c	4c
Rochelle salts	4c	2c	3c
Cream of tartar	6c	20 p c	6c
Blacking	25 p c	20 p c	25 p c
Bleaching powder	1-5c	.....	.....
Blue vitriol	½c	Free	2c
Bone char, suitable for decolorizing sugars	20 p c	20 p c	25 p c
Borax	5c	5c	3c
Borales of lime containing more than 36 p. c. of anhydrous boracic acid	4c	1½c	3c
Not more than 36 p. c.	3c	1½c	3c
Camphor, refined	6c	10 p c	4c
Chalk (not medicinal or toilet) precipitated or prepared in cubes, blocks, or sticks, including tailors', billiard, red, or French	1c	.....	.....
Other chalk	25 p c	.....	.....
Chloroform	20c	25c	25c
Coal tar dyes, not provided for	30 p c	25 p c	35 p c
Other products of coal tar	20 p c	Free	20 p c
Cobalt, oxide of	25 p c	25 p c	30 p c
Collodion	50c	40c	50c
Rolled in sheets	60c	50c	60c
Manufactured	65c & 25 p c	45 p c	60c & 25 p c
Coloring for brandy, etc	50 p c	50 p c	50 p c
Copperas	¼c	Free	3-10c
Drugs, such as barks, beans, buds, dried insects, gum, nuts, advanced in value, not provided for	¼c & 10 p c	10 p c	10 p c
Ethers—			
Sulphuric, per lb	40c	40c	40c
Spirits of nitrous	25c	25c	25c
Fruit ethers, oils, or essences	$2	$2	$2.50
Ethers not provided for	$1	$1	$1
None shall pay less than 25 p. c.			
Extracts and decoctions of logwood, etc., not provided for	⅞c	10 p c	⅞c
Extracts of quebracho and hemlock bark	½c	10 p c	⅞c

Articles.	Dingley Law.	Wilson Law.	McKinley Law
Extracts of sumac and of woods other than dye woods, not provided for	⅝c	10 p c	⅝c
Gelatine, glue, etc., valued not above 10c. lb	2½c	25 p c	1½c
Valued above 10c. and not above 35c. lb	25 p c	25 p c	30c
Valued above 35c. lb	15c & 20 p c	25 p c	30c
Glycerine crude	1c	1c	1¾c
Glycerine, refined	3c	3c	4½c
Indigo, extracts or paste	¾c	Free	¾c
Indigo, carmined	10c	Free	10c
Ink and ink powders	25 p c	25 p c	30 p c
Iodine, resublimed	20c	Free	50c
Iodoform	$1	$1	$1.50
Licorice	4½c	5c	5½c
Chicle	10c	Free	Free
Magnesia, carbonate of, medicinal	3c	3c	4c
Calcined, medicinal	7c	7c	8c
Sulphate, epsom salts	1-5c	1-5c	3-10c
Oils—			
Alizarin, etc., liquid or solid, where 50 per cent. castor oil is used	30c gal	30 p c	30 p c
Less than 50 per cent. castor oil used	15c	30 p c	40c
All other alizarin not provided for	30 p c	30 p c	30 p c
Castor oil	35c gal	35c	80c
Cod liver oil	15c	20 p c	15c
Cottonseed oil	4c	Free	10c
Croton oil	20c lb	Free	30c
Flaxseed	20c gal	20c	32c
Fusel oil	¼c lb	10 p c	10 p c
Hempseed and rapeseed oil	10c gal	10c	10c
Olive oil not provided for	40c	35c	35c
Packed in bottles, jars, etc	50c	35c	35c
Peppermint oil	50c lb	25 p c	8c
Seal, herring, and other fish oil	8c gal	25 p c	40 p c
Opium, crude, containing 9 per cent. of morphia	$1 lb	Free	Free
Morphine and all salts of opium	$1 oz	50c	50c
Aqueous extracts of opium not provided for	40 p c	20 p c	40 p c
Opium containing less than 9 per cent. of morphia, and opium prepaid for smoking	$6 lb	$6	$12
Paints, Colors, & Varnishes—			
Baryta, sulphate of, including bartyes earth, unmanufactured	75c ton	$1.12	Free
Manufactured	$5.25	$3	$6.72
Blues, such as Berlin, etc., containing ferrocyanide of iron, in pulp, dry or ground in oil	8c lb	6c	6c
Blanc-fixe	½c	25 p c	¾c
Black, from bone, ivory or vegetable, dry or ground in oil or water	25 p c	20 p c	25 p c
Chrome yellow, green, etc., dry or mixed with oil or water	4½c	3c	4⅝c
Ochre, sienna, umber, crude, not powdered or washed	⅛c	Free	¼c
Powdered or washed	⅜c	Free	¼c
Ground in oil or water	1⅜c	1¼c	1⅜c
Orange mineral	3⅜c	1¾c	3⅜c
Red lead	2⅞c	1½c	3c
Ultra-marine blue and wash blue containing ultra-marine	3¾c	3c	4½c
Varnishes, including gold size	35 p c	25 p c	35 p c
Spirit varnishes	$1.32 gal and 35 p c	$1.32 & add for alcohol	$1.32 & add for alcohol
Vermilion red and other colors containing quicksilver	10c lb	20 p c	12c
Not containing quicksilver	5c	6c	20 p c
White lead and other pigment containing lead	2⅞c	1½c	3c
Whiting and Paris white, dry	¼c	¼c	½c
Ground in oil or putty	1c	⅜c	1c
Zinc oxide of, or pigment, containing zinc, but not lead, dry	1c	1c	¼c
Ground in oil	1¾c	1c	¾c
Sulphide of, or white sulphide of zinc	1¾c	25 p c	25 p c
Chloride and sulphate of	1c	25 p c	25 p c
All paints and pigments, lakes, crayons, smalts, frostings, or crude, dry, or mixed, ground with water, oil, or other solutions not provided for; artists' paints in tubes, pans, or cakes	30 p c	¾c	1c
Paris green and London purple	15 p c	12½ p c	25 p c
Lead—			
Acetate of white	3¼c lb	2¾c lb	5½c lb
Brown, gray, or yellow	2¼c	1¾c	3½c
Nitrate of	2½c	1½c	3c
Litharge	2¾c	1⅜c	3c
Phosphorus	18c	15c	20c
Potash—			
Bichromate and chromate of	3c	25 p c	3c
Caustic of, refined, in sticks or rolls	1c	Free	1c
Chlorate of	2½c	20 p c	20 p c
Hydriodate, iodide, iodate of	25c	25 p c	50c
Nitrate of, refined	½c	¼c	1c
Prussiate of, red	8c	25 p c	10c
Yellow	4c	25 p c	5c
Cyanide of potassium	12½ p c	20 p c	20 p c
Preparations—			
Medicinal preparations containing alcohol, or in the preparation of which alcohol is used	55c lb	50c	50c
In no case to pay less than 25 p. c.			
Medicinal preparations not containing alcohol, and alcohol not used in preparation	25 p c	25 p c	25 p c
Calomel and other mercurial preparations	35 p c	25 p c	25 p c
Plasters, healing or curative	35 p c	25 p c	25 p c
Preparations for hair, mouth or skin, cosmetics, etc., in which alcohol is not used	50 p c	40 p c	50 p c
Santonin and salts thereof, containing 80 p. c. of santonin	$1.00 lb	$1.00 lb	$2.50 lb
Soap—			
Castile	1¼c	20 p c	1¼c
Fancy toilet and medicinal	15c	35 p c	15c
All other soaps	20 p c	10 p c	20 p c
Soda—			
Bicarbonate of, and alkalies containing 50 p. c. of bicarbonate	¾c	1½c	1c
Bichromate and chromate of soda	2c	25 p c	3c
Crystal carbonate of soda	3-10c	25 p c	25 p c
Chlorate of	2c	25 p c	25 p c
Hydrate of soda	¾c	½c	1c
Nitrite of	2½c	25 p c	25 p c
Sal soda, not concentrated	2-10c	⅛c	¼c
Hyposulphite and sulphide of	½c	.....	.....
Soda ash	⅜c	¼c	¼c
Arseniate of soda	1¼c	25 p c	25 p c
Silicate of soda	½c	⅜c	½c
Sulphate of soda	$1.25 ton	Free	$1.25
Sea moss	10 p c	.....	.....
Sponges	20 p c	10 p c	20 p c
Manufactures sponges	40 p c	10 p c	20 p c
Strychnia and all salts thereof	30c oz	30c	40c
Sulphur, refined or flowers of	$8 ton	20 p c	$8 ton
Sumac, ground	3-10c lb	3-10c lb	.....
Vanilla	80c oz	25 p c	25 p c

Schedule B—Earths, Earthenware, and Glassware.

Articles.	Dingley Law.	Wilson Law.	McKinley Law
Brick and Tile—			
Fire brick, weighing not more than 10 lbs. each, not glazed or decorated	$1.25 ton	25 p c	$1.25
Glazed or ornamented	45 p c	30 p c	45 p c
Brick, other than fire brick, not glazed or ornamented	25 p c	25 p c	45 p c
If glazed or ornamented	45 p c	30 p c	45 p c
Tiles, plain, one color, exceeding 2 sq. in. in size	4c s f	25 p c	25 p c
Glazed, ceramic, mosaic, ornamented, and all earthenware tiles, valued at not more than 40c. sq. ft	8c s f	25 p c	25 p c
Exceeding 40c. sq. ft	10c s f & 25 p c	40 p c	45 p c
Cement, Lime and Plaster—			
Roman, Portland, and other hydraulic, in barrels, sacks, or packages	8c cwt	8c	8c
In bulk	7c	7c	7c
Other cement	20 p c	10 p c	20 p c
Lime	5c cwt	5c	6c
Plaster, rock, or gypsum, crude	50c ton	$1.25	$1.75
Ground or calcined	$2.25	$1.25	$1.75
Pearl hardening	20 p c	$1.50	$1.75
Pumice stone, wholly or partially manufactured	$6 ton	Free	Free
Unmanufactured	15 p c	Free	Free
Clays or Earths—			
Clays or earths, unwrought or unmanufactured	$1 ton	$1	$1.50
Wrought or manufactured	$2	$2	$3
China clay or kaolin	$2.50	$2	$3
Limestone rock, asphalt, containing not more than 15 p. c. bitumen	50c ton	Free	Free
Asphaltum and bitumen, not provided for, crude, if not dried or advanced in any manner	$1.50	Free	Free
Dried, or advanced in any manner	$3 ton	Free	Free
Beauxite, crude	$1	Free	Free
Fuller's earth, unwrought	$1.50	$1	$1.50
Wrought	$3	$2	$3
Earthenware and China—			
Common yellow and brown, plain, embossed, or glazed, not decorated	25 p c	20 p c	25 p c
Rockingham earthenware, not decorated	40 p c	30 p c	55 p c
China, porcelain, crockeryware, ornaments and toys, decorated or ornamented, including clock cases, with or without movements	60 p c	60 p c	60 p c
Plain white, without ornament	55 p c	35 p c	55 p c
All other china, porcelain, crockeryware, etc., in any way decorated or ornamented	60 p c	40 p c	60 p c
If not ornamented or decorated	55 p c	30 p c	55 p c
Articles wholly or in part of mineral substances, not decorated	35 p c	30 p c	55 p c
If decorated	45 p c	40 p c	60 p c
Gas retorts	$3 each	20 p c	$3
Lava tips	10c gross & 15 p c	30 p c	55 p c
Carbons for electric lighting	90c per 100	20 p c	20 p c
Filter tubes	45 p c	20 p c	20 p c
Porous carbon pots for electric batteries, without metallic connections	20 p c	20 p c	20 p c
Glass and Glassware—			
Plain green or colored, molded or pressed flint, lime or lead glass bottles, vials, jars, demijohns, carboys, filled or unfilled, holding more than one pint	1c lb.	¾c	1c
Holding not more than one pint and not less than ¼ pint	1⅜c	¾c	1½c
Holding less than ¼ pint	50c gr'ss	40c	50c
None to pay less than	40 p c	.....	.....
Glass bottles, or other vessels of glass, in any way ornamented or decorated, and porcelain and opal glassware	60 p c	40 p c	60 p c
Unpolished, cylinder, crown, and common window glass, not exceeding 10 by 15 inches square	1⅜c lb.	1c	1⅜c
Above that, and not exceeding 24 by 30 inches square	1⅞c	.....	.....
Above that, and not exceeding 24 by 36 inches square	2⅜c	1¾c	2⅜c
Above that, and not exceeding 24 by 36 inches square	2⅞c	2c	2⅞c
Not exceeding 30 by 40 inches square	3⅜c	2⅛c	3⅛c
Above that, not exceeding 40 by 60	3⅞c	2⅛c	3⅛c
Above that	4⅜c	2⅛c	3⅛c
Cylinder and crown glass, polished, not exceeding 16x24 inches square	4c s f	2⅜c	4c
Above that, and not exceeding 24x30 inches	6c	4c	6c
Above that, and not exceeding 24x60 inches	15c	15c	20c
Above that	20c	20c	40c
Fluted, rolled, or rough plate glass, or the same containing wire netting within itself, not including crown, cylinder, or common window glass, not exceeding 10x15 inches square	¾c	¾c	¾c
Above that, and not exceeding 16x24 inches	1c	1⅜c	2c
Above that, and not exceeding 24x30 inches	1½c	1½c	2c
All above that	2c	1½c	2c
All fluted, rolled, rough plate glass weighing over 100 lbs. per 100 square feet, shall pay an additional duty on the excess at the same herein imposed.			
Cast polished plate glass, unsilvered, not exceeding 16x24 inches square	8c	5c	5c
Above that, and not exceeding 24x30 inches square	12c	8c	8c
Above that, and not exceeding 24x60 inches square	22½c	22½c	25c
All above that	35c	35c	50c
Cast polished plate glass, silvered, and looking glass plates, exceeding in size 144 square inches, and not exceeding 16x24 inches square.	11c sq ft	6c	6c
Above that, and not exceeding 24x30 inches square	13c	8c	8c
Above that, and not exceeding 24x60 inches square	25c	22½c	25c
All above that	38c	35c	50c
No looking glass framed to pay less duty than when unframed, and shall pay additional duty applicable to frames.			
Cast polished plate glass, or common window glass, bent, obscured, beveled, etched, or otherwise ornamented or decorated	5 p c ad'tional	10 p c	10 p c
Spectacles, eye-glasses, goggles, and their frames, or parts, valued at or not over 40c per doz	20c doz & 15 p c	40 p c	60 p c
Valued at over 40c per doz and			

Articles.	Dingley Law.	Wilson Law.	McKinley Law
not over $1.50 per doz.....	45c & 20 p c	40 p c	60 p c
Valued at over $1.50 per doz ..	50 p c	40 p c	60 p c
Lenses of glass or pebble, ground and polished to a spherical, cylindrical, or prismatic form, and ground and polished plano or coquill glasses, wholly or partly manufactured, with the edges unground.....	45 p c	35 p c	60 p c
If with the edges ground or beveled	10c & 45 p c	35 p c	60 p c
Strips of glass not more than three inches wide, ground or polished on one side or both sides to a cylindrical or prismatic form, and glass slides for magic lanterns	45 p c	25 p c	60 p c
Opera and field glasses, telescopes, microscopes, photographic and projecting lenses, other optical instruments, and frames or mountings for the same, not specially provided for.....	45 p c	40 p c	60 p c
Stained or painted glass windows, mirrors not exceeding in size 144 square inches, with or without frames or cases, and all glass (except broken) or manufactures of which glass or paste is the component material of chief value, not specially provided for...	45 p c	35 p c	45 p c
Fusible enamel.....	25 p c	25 p c	45 p c
Marble and Stone and Manufactures of—			
Marble, in block, rough or squared only.....	65c c f	50c	65c
Onyx, in block, rough or squared	$1.50 c f	50c	65c
Marble or onyx, sawed or dressed, over two inches in thickness.....	$1.10 c f	85c	$1.10
Slabs or paving tiles of marble or onyx, containing not less than four superficial inches, if not more than one inch in thickness.....	12c su f	85c c f	$1.10 c f
If more than one inch and not more than 1½ inches in thickness.....	15c	85c c f	$1.10 c f
If more than 1½ inches and not more than two inches in thickness.....	18c	85c c f	$1.10 c f
If rubbed, in whole or part....	3c additional	.....	.....
Mosaic cubes of marble, onyx, or stone, not exceeding two cubic inches in size, if loose.	1c lb & 20 p c	85c c f	$1.10 c f
If attached to paper or other material.....	20c su f & 35 p c	85c c f	$1.10 c f
Manufactures of agate, alabaster, coral, marble, rock crystal, etc., not provided for, including clock cases, with or without movements.....	50 p c	45 p c	50 p c
Stone—			
Burr stones, manufactured or bound up into millstones....	15 p c	45 p c	50 p c
Freestone, granite, sandstone, limestone, and other building or monumental stone, except marble and onyx, unmanufactured or undressed, not specially provided for.....	12c c f	7c	11c
Freestone, granite, sandstone, limestone, and other building or monumental stone, except marble and onyx, not specially proved for, hewn, dressed, or polished	50 p c	30 p c	40 p c
Grindstones, finished or unfinished	$1.75 ton	10 p c	$1.75
Slates, slate chimney pieces, mantels, slabs for tables, roofing slates, and all other manufactures of slate not specially provided for	20 p c	20 p c	30 p c

Schedule C—Metals and Manufactures of.

Articles.	Dingley Law.	Wilson Law.	McKinley Law
Iron ore, including manganiferous iron ore, and dross from burnt pyrites	40c ton	40c ton	75c ton
Basic slag, ground or unground	$1 ton	40c	75c
Iron in pigs, iron Kentledge, Spiegeleisen, ferro manganese, ferro silicon, wrought and cast scrap iron and scrap steel	$4	$4	3-10c lb
Bar iron, square iron, rolled or hammered, comprising flats, not less than 1 inch wide, nor less than ⅜ in thickness, round iron, not less than 7-16 in diameter.....	6-10c lb	6-10c	8-10c
Round iron, in coils or rods, less than 7-16 of an inch in diameter, and bars or shapes of rolled or hammered iron, not specially provided for..	8-10c	8-10c	11-10c
Provided, that all iron in slabs, blooms, loops, or other forms less finished than iron in bars, and more advanced than pig iron, except castings, shall be subject to a duty of.....	5-10c	5-10c	8-10c
Provided further, that all iron bars, blooms, billets or sizes or shapes of any kind, in the manufacture of which charcoal is used as a fuel, shall be subject to a duty of.....	$12 ton	$12	$22
Beams, girders, joists, angles, channels, car truck channels, tees, columns, and posts or parts or sections of columns and posts, deck and bulb beams and building forms, together with all other structural shapes of iron or steel, whether plain or punched or fitted for use.....	5-10c lb	6-10c	9-10c
Boiler or other plate iron or steel, except crucible plate steel and saw plates, hereinafter provided for, not thinner than No. 10 wire gauge, sheared or unsheared, and skelp iron or steel, sheared or rolled in grooves, valued at 1c per pound or less.....	5-10c	5-10c	5-10c
Valued above 1c and not above 2c per pound.....	6-10c	6-10c	8-10c
Valued above 2c and not above 4c per pound	1c	30 p c	15-10c
Valued at over 4c.....	25 p c	25 p c	2c
Iron or steel anchors or parts thereof.....	1½c lb	1½c	23-10c
Forgings of iron and steel of whatever shape or stage of manufacture	35 p c	35 p c	45 p c
Ball forgings of iron or steel..	45 p c	.....	.....
Hoop, band, or scroll iron or steel, valued at 3c per pound or less, 8 inches or less in width, and less than ⅜ of 1 inch thick, and not thinner than No. 10 wire gauge.....	5-10c	30 p c	1c
Thinner than No. 10 wire gauge and not thinner than No. 20 wire gauge	6-10c	30 p c	11-10c
Thinner than No. 20 wire gauge	8-10c	30 p c	13-10c
Provided, that barrel hoops of iron or steel, and hoop or band iron, splayed or punched, shall pay more duty than that imposed on the hoop or band from which they are made.....	1-10c	.....	2-10c
Steel bands or strips, untempered, suitable for band saws	3c lb & 20 p c	.....	.....
If tempered.....	6c & 20 p c	.....	.....
Hoop iron or steel, wholly or partially manufactured into hoops, painted or not, with or without fastenings for baling.....	5-10c lb	.....	.....
Railway bars made of iron or steel and railway bars made in part of steel, T rails, and punched iron or steel flat rails	7-20c	30 p c	1 1-10c
Railway fish plates or splice bars, made of iron or steel...	4-10c	7-20c	6-10c
Sheets of iron or steel, common or black, of whatever dimensions, and skelp iron or steel, valued at 3c. per lb. or less, thinner than No. 10 and not thinner than No. 20 wire gauge.....	7-10c	7-10c	1c
Thinner than No. 20 wire gauge and not thinner than No. 25 wire gauge	8-10c	8-10c	1 1-10c
Thinner than No. 25 wire gauge and not thinner than No. 32 wire gauge	1 1-10c	1 1-10c	1 4-10c
Thinner than No. 32 wire gauge	1 2-10c	1 1-10c	1 4-10c
Corrugated or crimped.....	1 1-10c	1 1-10c	1 4-10c
Steel sheets or plates, and hoop or scroll iron or steel, not tin plates and taggers tin, galvanized or coated with metal, more than if not galvanized.	2-10c	.....	.....
Sheets of iron or sheet steel, polished, planished or glanced, by whatever name designated	2c	1¾c	2½c
Provided, that plates or sheets of iron or steel, by whatever name designated, other than the polished, planished, or glanced herein provided for, which have been pickled or cleaned by acid or by any other material or process, or which are cold rolled, smoothed only, not polished, shall pay more duty than the corresponding gauges of common or black sheet iron or steel.....	2-10c	1/8c	¼c
Sheets or plates of iron or steel or taggers iron or steel, coated with tin or lead, or with a mixture of which these metals or either of them is a component part, by the dipping or any other process, and commercially known as tin plates, terne plates, and taggers tin.....	1⅛c	1 1-5c	2 2-10c
Steel ingots, cogged ingots, blooms, and slabs, by whatever process made; die blocks or blanks; billets, and bars, and tapers or beveled bars, mill shafting; pressed, sheared, or stamped shapes; saw plates wholly or partially manufactured; hammer molds or swaged steel; gun barrel molds not in bars; alloys used as substitutes for steel in the manufacture of tools; all descriptions and shapes of dry sand, loam, or iron molded steel castings; sheets and plates, and steel in all forms and shapes not specially provided for; all of the above valued at 1c per pound or less.....	3-10c	3-10c	4-10c
Valued above 1c and not above 1 4-10c per lb.....	4-10c	4-10c	4-10c
Valued above 1 4-10c and not above 1 8-10c lb.....	6-10c	6-10c	8-10c
Valued above 1 8-10c and not above 2 2-10c lb.....	7-10c	7-10c	9-10c
Valued above 2 2-10c and not above 3c lb.....	9-10c	9-10c	1 2-10c
Valued above 3c and not above 4c lb	1 2-10c	1 2-10c	1 6-10c
Valued above 4c and not above 7c lb.....	1 3-10c	1 3-10c	2c
Valued above 7c and not above 10c lb	2c	1 9-10c	2 8-10c
Valued above 10c and not above 13c lb.....	2 4-10c	2 4-10c	3½c
Valued above 13c and not above 16c lb.....	2 8-10c	2 8-10c	4 2-10c
Valued above 16c per lb.....	4 7-10c	4 7-10c	7c
Wire—			
Wire, rods, rivet, screw, fence, and other iron or steel wire rods, whether round, oval, flat, or square, or in any other shape, and nail rods in coils or otherwise, valued at 4c or less per lb.....	4-10c	4-10c	6-10c
Valued over 4c.....	¾c	¾c	6-10c
If tempered, treated, or partially manufactured, an additional duty of.....	½c	.....	.....
Round iron or steel wire, not smaller than No. 13 wire gauge.....	1¼c	1¼c	1¼c
Smaller than No. 13, and not smaller than No. 16.....	1½c	1½c	1¾c
Smaller than No. 16.....	2c	2c	2¼c
Valued at more than 4c lb.....	40 p c	.....	.....
Iron, or steel, or other wire not provided for, including such as is known as hat, bonnet, crinoline, corset, needle, piano, clock, and watch wire, flat or otherwise; and corset clasps, steels and dress steels and sheet steel in strips .0025 of an inch thick or thinner, whether uncovered or covered with cotton, silk, metal, or other material, valued at more than 40c lb.....	45 p c	40 p c	50 p c
Provided, that articles manufactured from iron, steel, brass, or copper wire shall pay the rate of duty which would be imposed on the wire used, and in addition.....	1¼c lb	.....	.....
And on iron or steel wire coated with zinc, tin, or other metal, in addition to duty on the wire.....	2-10c	.....	½c
All metal produced from iron or its ores, which is cast and malleable, shall be classed as steel.			
No article wholly or partly of			

Articles.	Dingley Law.	Wilson Law.	McKinley Law
tin plate shall pay less duty than tinplate.			
All iron or steel, cold rolled, drawn, or hammered or polished, in addition	¼c	.....	.....
On strips, plates, or sheets of iron or steel, other than polished or planished, treated in like manner, in addition	1c	.....	.....
On steel circular saw plates, in addition to rates for steel saw plates	½c	.....	.....
Manufacture of Iron and Steel—			
Anvils of iron or steel, or of iron and steel combined, by whatever process made, or in whatever stage of manufacture	1⅞c lb	1¾c	2½c
Axles or parts thereof, axle bars, axle blanks or forgings for axles, whether of iron or steel, without reference to the stage or state of manufacture, valued at not more than 6c lb	1c lb	1½c	2c
Blacksmiths' hammers and sledges, track tools, wedges, and crowbars, whether of iron or steel	1⅝c	1⅜c	2¼c
Bolts, with or without threads or nuts, or bolt blanks and finished hinges or hinge blanks, whether of iron or steel	1⅝c	1½c	2¼c
Card clothing manufactured from tempered steel wire	45c s f	40c	50c
All other	20c s f	40c	25c
Cast iron pipe of every description	4-10c lb	6-10c	8-10c
Cast iron vessels, plates, stove plates, andirons, sadirons, tailors' irons, hatters' irons and castings of iron not specially provided for	8-10c	8-10c	2 2-10c
Castings of malleable iron not specially provided for	9-10c	9-10c	1¾c
Cast hollow ware, coated, glazed or tinned	2c	2c	3c
Chain or chains of all kinds, made of iron or steel, not less than ¾ of an inch in diameter	1⅛c	30 p c	1 6-10c
Less than ¾ of an inch and not less than ⅜ inch in diameter.	1⅜c	30 p c	1 8-10c
Less than ⅜ inch and not less than 5-16	1⅞c	30 p c	2½c
Less than 5-16	3c	30 p c	2½c
Provided, no chain or chains of any description shall pay a lower rate of duty than	45 p c	30 p c	45 p c
Lap welded, butt welded, seamed or jointed, iron or steel boiler tubes, pipes, flues or stays, not thinner than No. 16 wire gauge	2c	25 p c	2½c
Welded cylindrical furnaces, made from plate metal	2½c	25 p c	2½c
All other iron or steel tubes, finished or unfinished, not provided for	35 p c	.....	.....
Cutlery—			
Penknives, pocket knives, clasp knives, pruning knives, and budding knives of all kinds, erasers or parts thereof, wholly or partly manufactured, valued at not more than 40c per doz	40 p c	25 p c	12c doz
Valued at more than 40c and not exceeding 50c per doz.	1c each & 40 p c	25 p c	.....
Valued at more than 50c and not exceeding $1.25 per doz.	5c & 40 p c	25 p c	.....
Valued at more than $1.25 and not exceeding $3 per doz	10c & 40 p c	7½c doz	$2 doz
Valued at more than $3 per doz.	20c & 40 p c	$1.50 doz	$2 doz & 50 p c
Razors and razor blades, finished or unfinished, valued at less than $1.50 per doz	50c doz & 15 p c	40 p c	$1 doz & 30 p c
At $1.50 per doz and less than $3 per doz	$1 & 15 p c	40 p c	$1 doz & 30 p c
Valued at $3 per doz or more	$1.75 doz & 20 p c	40 p c	$1.75 doz & 30 p c
Scissors and shears, and blades of the same, finished or unfinished, valued at not more than 50c doz	15c & 15 p c	40 p c	45 p c
Valued at more than 50c and not more than $1.75 per doz.	50c & 15 p c	45 p c	45 p c
Valued at more than $1.75 per doz	75c & 25 p c	35 p c	35 p c
Swords, sword blades, and side arms	35 p c	35 p c	35 p c
Table, butchers', carving, cooks', hunting, kitchen, bread, butter, vegetable, fruit, cheese, plumbers', painters', palette, artists', and shoe knives, forks and steels, finished or unfinished, with handles of mother-of-pearl, shell or ivory	16c each & 15 p c	35 p c	$1 doz & 35 p c
With handles of deer horn	12c & 15 p c	.....	.....
With handles of hard rubber, solid horn, celluloid, or any pyroxyline material	5c & 15 p c	.....	.....
With handles of other material	1½c & 15 p c	.....	.....
Files, file blanks, rasps, and floats of all cuts and kinds, 2½ inches in length and under	30c doz	35c	35c
Over 2½ inches and under 4½ inches in length	50c doz	60c	60c
Over 4½ and under 7 inches	75c	60c	60c
Seven inches in length and over	$1	$1	$2
Firearms—			
Muskets, muzzle loading shotguns, rifles and parts thereof.	25 p c	25 p c	25 p c
Double barreled, sporting breech loading shotguns, combination shotguns and rifles valued at not more than $5	$1.50 & 15 p c	30 p c	$1.50 & 35 p c
Valued at more than $5 and not more than $10	$4 & 15 p c	30 p c	$3 & 35 p c
Valued at more than $10	$6 & 35 p c	30 p c	$6 & 35 p c
Double barrels for sporting breech loading shotguns and rifles, further advanced in manufacture than rough bored only	$3 each 35 p c	30 p c	$3 & 35 p c
Stocks for double barreled sporting breech loading shotguns and rifles, wholly or partially manufactured	$3	30 p c	$3 & 35 p c
On all other parts of such guns or rifles, and fittings for such stocks or barrels, finished or unfinished	50 p c	30 p c	35 p c
Provided, that all double barreled sporting breech-loading shotguns and rifles imported without a lock or locks or other fittings shall be subject to a duty of	$6 & 35 p c	30 p c	$6 & 35 p c
Single barrel breech loading shotguns, or parts thereof, excepting as otherwise specially provided for	$1 & 35 p c	30 p c	$1 & 35 p c
Revolving pistols or parts thereof	75c & 25 p c	30 p c	40c & 35 p c
Sheets and plates, ware or articles of iron, steel, or other metal, enameled or glazed with vitreous glasses	40 p c	35 p c	45c & 50 p c
Nails, Spikes, Tacks and Needles—			
Cut nails and cut spikes of iron or steel	6-10c lb	22½ p c	1c
Horseshoe nails, hob-nails, and all other wrought iron or steel nails not specially provided for	2¼c	30 p c	4c
Wire nails made of wrought iron or steel not less than 1 inch in length and not lighter than No. 16 wire gauge	½c	25 p c	2c
Shorter than 1 inch and lighter than No. 16 wire gauge	1c	25 p c	4c
Spikes, nuts and washers, and horse, mule or ox shoes, of wrought iron or steel	1c	25 p c	1⅛c
Cut tacks, brads, or sprigs, not exceeding 16 ounces to the 1,000	1¼c	25 p c	2¼c
Exceeding 16 ounces to the 1,000	1½c	25 p c	2¾c
Needles for knitting or sewing machines, including latch needles	$1 M & 25 p c	25 p c	35 p c
Crochet needles and tape needles, knitting and all other needles not specially provided for, and bodkins of metal	25 p c	25 p c	35 p c
Steel engraved, stereotype plates, electrotype plates, and plates of other materials, engraved or lithographed, for printing	25 p c	35 p c	25 p c
Rivets of iron or steel	2c lb	25 p c	2½c
Saws—			
Crosscut saws, per linear foot	6c	6c	8c
Mill saws, per linear foot	10c	10c	10c to 15c
Pit and drag saws, per linear foot	8c	8c	10c to 15c
Circular saws	25 p c	25 p c	30 p c
Steel band saws, finished or unfinished	10c lb & 20 p c	.....	.....
Hand, buck, and all other saws not specially provided for	30 p c	25 p c	40 p c
Screws, commonly called wood screws, made of iron or steel, more than 2 inches in length	4c lb	3c	5c
Over 1 inch and not more than 2 inches in length	6c	5c	7c
Over ½ inch and not more than 1 inch	8½c	7c	10c
One-half inch and less in length	12c	10c	14c
Umbrella and parasol ribs and stretchers, composed in chief value of iron, steel, or other metal	50 p c	50 p c	45 p c
Wheels or parts thereof, made of iron or steel, and steel tired wheels for railway purposes, whether wholly or partly finished, and iron or steel locomotive, car, or other railway tires or parts thereof, wholly or partly manufactured	1½c lb	1¼c	1¾c to 2½c
Ingots—Cogged ingots, blooms, or blanks for the same, without regard to the degree of manufacture	1¼c lb	1¼c	1¾c to 2⅜c
Provided, that when wheels or parts thereof of iron or steel are imported, with iron or steel axles fitted in them, the wheels and axles together shall be dutiable at the same rate as is provided for the wheels when imported separately.			
Miscellaneous Metals and Manufactures of—			
Aluminum and alloys of any kind in which aluminum is the component material of chief value in crude form	8c lb	10c	15c
Plates, sheets, bars, and rods	13c	10c	15c
Antimony as regulus or metal	¾c	Free	¾c
Argentine, Albata, or German silver, unmanufactured	25 p c	15 p c	25 p e
Bronze powder	12c lb	40 p c	12c
Bronze or Dutch metal of aluminum in leaf	6c 100 leaves	40 p c	8c 100 leaves
Copper in rolled plates, sheets, rods, pipes, and copper bottoms	2½c lb	20 p c	35 p c
Sheathing or yellow metal, of which copper is the component material of chief value, and not composed wholly or in part of iron ungalvanized.	2c	20 p c	35 p c
Gold and Silver—			
Gold leaf, 500 leaves	$1.75	30 p c	$2.00
Silver leaf, 500 leaves	75c	30 p c	75c
Tinsel wire, lame or lahn, made wholly or in chief value of gold, silver or other metal	5c lb	25 p c	30 p e
Bullions and metal thread, with chief value in tinsel wire, lame or lahn	5c and 35 p c	Free	Free
Laces, embroideries, braids, trimmings or other articles with chief value in tinsel wire, lame or lahn, bullions or metal threads	60 p c	Free	Free
Hooks and eyes, metallic, whether loose, carded or otherwise	5½c lb & 15 p c	35 p c	
Lead—			
Lead-bearing ore of all kinds, on the lead contained therein	1½c lb	¾c	1½c
Lead dross, lead bullion or base bullion, lead in pigs and bars and old refuse; lead run into blocks and bars, and old scrap lead fit only to be remanufactured	2⅛c	1c	2c
Lead in sheets, pipe, shot, glaziers' lead and lead wire	2½c	1¼c	2½c
Metallic mineral substances in crude state, and metals unwrought, not specially provided for	20 p c	.....	25 p c
Monazite sand and thorite	6c lb	.....	25 p c
Mica unmanufactured	6c lb & 20 p c	20 p c	35 p c
Cut or trimmed	12c & 20 p c	20 p c	35 p c
Nickel oxide, alloy, in which nickel is of chief value, in pigs, ingots, bars or sheets	6c	6c	10c

Articles.	Dingley Law.	Wilson Law.	McKinley Law
Pens, metallic, except gold pens	12c grs	8c	12c
Penholder tips, penholders and parts, and gold pens	25 p c	25 p c	30 p c
Pins with solid heads, without ornamentation, including hair, safety, hat and shawl pins, wholly of brass, copper, iron, steel or other base metal not plated, and not commonly known as jewelry	35 p c	25 p c	30 p c
Quicksilver	7c lb	7c	10c
Type metal, for the lead contained therein	1½c	¾c	1½c
New types	25 p c	15 p c	25 p c
Watch movements having not more than 7 jewels	35c each & 25 p c	.....	.....
If having more than 7 jewels and not more than 11 jewels	50c & 25 p c	.....	.....
If having more than 11 jewels and not more than 15 jewels	75c & 25 p c	.....	.....
If having more than 15 jewels and not more than 17 jewels	$1.25 & 25 p c	.....	.....
If having more than 17 jewels	$3.00 & 25 p c	.....	.....
Watch cases and parts of watches, including watch dials, chronometers, box or ship, and parts thereof, clocks and parts thereof, not otherwise provided for, whether separately packed or otherwise, not wholly or in chief value of china, porcelain or earthenware	40 p c	25 p c	25 p c
All jewels for watches or clocks	10 p c	25 p c	25 p c
Zinc in blocks or pigs	1½c lb	1c	1¾c
In sheet	2c	1¼c	2¼c
Old and worn out, fit only to be remanufactured	1c	¾c	1¼c
Articles or wares not specially provided for, composed wholly or in part of iron, steel, lead, copper, nickel, pewter, zinc, gold, silver, platinum, aluminum, or other metal, and whether partly or wholly manufactured	45 p c	35 p c	45 p c

Schedule D—Wood and Manufactures of.

Articles.	Dingley Law.	Wilson Law.	McKinley Law
Timber, hewn, sided or squared (not less than 8 inches square) and round timber used for spars or in building wharves	1c c f	Free	10 p c
Sawed boards, planks, deals and other lumber, of whitewood, sycamore and basswood	$1 M	Free	$1
Sawed lumber, not provided for	$2	Free	$2
When lumber of any sort is planed or finished, in addition to the rates herein provided there shall be paid for each side so planed or finished, per thousand feet, board measure	50c	Free	50c
If planed on one side, and tongued and grooved, per thousand feet	$1	Free	$1
If planed on two sides, and tongued and grooved, per thousand feet	$1.50	Free	$1.50
Paving posts, railroad ties, telephone, trolley, electric light, and telegraph poles of cedar	20 p c	Free	20 p c
Other woods	20 p c	Free	Free
Kindling wood in bundles, not exceeding one-quarter of a cubic foot each, per bundle	3-10c	Free	Free
Larger bundles, for each additional quarter of a cubic foot or fraction thereof	3-10c	Free	Free
Sawed boards, planks, deals, etc., not further manufactured than sawed	15 p c	Free	15 p c
Veneers of wood, unmanufactured, not specially provided for	20 p c	Free	20 p c
Clapboards, per M	$1.50	Free	$1.50
Hubs for wheels, posts, last blocks, wagon blocks, heading bolts, stave bolts, oar blocks, heading blocks, and all like blocks or sticks, rough hewn, sawed or bored	20 p c	Free	20 p c
Fence posts	10 p c	Free	20 p c
Lath, per M	25c	Free	15c
Pickets and palings and staves of wood of all kinds	10 p c	Free	10 p c
Shingles, per M	30c	Free	20 p c
Casks and barrels and hogsheads (empty), sugar box shooks, packing boxes and packing box shooks of wood, not specially provided for	30 p c	20 p c	30 p c
Boxes, barrels, or other articles containing oranges, lemons, fruit, etc	30 p c	.....	.....
Chair cane or reeds, wrought or manufactured from rattans or reeds	10 p c	10 p c	10 p c
Osier or willow, prepared for basket makers' use	20 p c	20 p c	20 p c
Manufactures of osier or willow	40 p c	25 p c	35 p c
Toothpicks or vegetable substances, per thousand	15 p c	35 p c	35 p c
Butchers' and packers' skewers	40c M	.....	.....
House or cabinet furniture, manufactured or partially manufactured, and manufactures of wood, or of which wood is the material of chief value, not specially provided for	35 p c	25 p c	35 p c

Schedule E—Sugar, Molasses, and Manufactures of.

Articles.	Dingley Law.	Wilson Law.	McKinley Law
Sugar, not above No. 16 Dutch standard in color, tank bottoms, syrups of cane juice, melada, concrete and concentrated molasses, testing by the polariscope not above 75 degrees	95-100c lb	40 p c	Free
For each additional degree and fraction of degree in proportion	35-1000c	.....	.....
Sugar above No. 16 Dutch standard in color, and on all sugar which has gone through a process of refining	1 95-100c	⅛c and p c	5-10c
Molasses testing above 40 degrees and not above 56 degrees	3c gal	.....	.....
Testing 56 degrees and above	6c gal	.....	.....
Sugar drainings and sweepings shall pay duty according to polariscopic test.			
Maple sugar and maple syrup	4c lb	40 p c	40 p c
Glucose or grape sugar	1½c lb	15 p c	¾c lb
Sugar cane, natural state	20 p c	10 p c	10 p c
Saccharine	$1.50 & 10 p c	25 p c	50 p c
Sugar candy and all confectionery valued at 15c per lb or less, and on sugar after being refined when tinctured, colored or adulterated	4c & 15 p c	35 p c	5c
Valued at more than 15c lb	50 p c	35 p c	50 p c

Schedule F—Tobacco and Manufactures of.

Articles.	Dingley Law.	Wilson Law.	McKinley Law
Wrapper tobacco and filler tobacco, when mixed or packed with more than 15 per cent of wrapper tobacco, and all leaf tobacco the product of two or more countries, when mixed or packed together, if unstemmed	$1.85 lb	35c	$2
If stemmed	$2.50	50c	$2.75
Filler tobacco not provided for, if unstemmed	35c	35c	35c
If stemmed	50c	50c	50c
All other tobacco, manufactured or unmanufactured, not provided for	55c	40c	40c
Snuff and snuff flour, manufactured of tobacco, of all descriptions	55c	50c	50c
Cigars, cigarettes, and cheroots, including paper cigars and cigarettes	$4.50 lb & 25 p c	$4 & 25 p c	$4.50 & 25 p c

Schedule G—Agricultural Products and Provisions.

Articles.	Dingley Law.	Wilson Law.	McKinley Law
Animals, Live—			
Cattle, if less than 1 year old	$2 head	20 p c	$2
All other cattle, if valued at not more than $14 a head	$3.75	.....	.....
Valued at more than $14	27½ p c	.....	.....
Swine	$1.50	20 p c	$1.50
Horses and mules valued at $150 or less per head	$30 head	20 p c	$30
Valued at over $150	25 p c	20 p c	30 p c
Sheep 1 year old or over	$1.50	20 p c	$1.50
Less than 1 year old	75c	20 p c	75c
Other live animals not provided for	20 p c	20 p c	20 p c
Breadstuffs and Farinaceous Substances—			
Barley	30c bu	40 p c	30c
Barley malt	45c	40 p c	45c
Barley, pearled, patent or hulled	2c lb	40 p c	2c
Buckwheat	15c bu	15 p c	15c
Corn	15c	15 p c	15c
Cornmeal	20c	15 p c	20c
Macaroni, vermicelli, and similar preparations	1½c lb	20 p c	2c
Oats	1c lb	15 p c	1c
Oatmeal and rolled oats	1c lb	15 p c	2c
Oat hulls, per 100 lbs	10c	20 p c	20 p c
Rice, cleaned	2c lb	1½c	2c
Uncleaned, or free from outer hull, with inner cuticle on	1¼c	8-10c	1¼c
Rice flour, meal, and rice broken which will pass through a sieve known as No. 12 wire sieve	¼c	¼c	¼c
Paddy, or rice with outer hull on	¾c	¾c	¾c
Rye	10c bu	15 p c	10c
Rye flour	½c lb	15 p c	½c
Wheat	25c bu	15 p c	25c
Wheat flour	25 p c	25 p c	25 p c
Dairy Products—			
Butter and substitutes therefor	6c lb	4c	6c
Cheese and substitutes therefor	6c	4c	6c
Milk, fresh	2c gal	Free	5c
Milk, preserved or condensed, or sterilized	2c lb	2c	3c
Sugar of milk	5c	5c	5c
Farm and Field Products—			
Beans	45c bu	20 p c	40c
Beans, peas and mushrooms, preserved in tins, jars or similar packages	2½c lb	.....	.....
All vegetables, prepared or preserved, including pickles and sauces of all kinds, not provided for, and fish paste or sauce	40 p c	30 p c	40 p c
Cabbages	3c ea	Free	Free
Cider	5c gal	Free	5c
Eggs, not provided for	5c doz	3c	5c
Eggs, yolk of	25 p c	Free	25 p c
Albumen, egg or blood	3c lb	Free	.....
Dried blood, soluble	1½c	Free	.....
Hay	$4 ton	$2	$4
Honey	20c gal	10c	20c
Hops	12c lb	8c	15c
Hop extract	50 p c	.....	.....
Onions	40c bu	20c	40c
Garlic	1c lb	7 p c	10 p c
Peas, green, in bulk, barrels, sacks, or similar packages	40c bu	Free	40c
Peas, dried	30c bu	20c	20c
Peas, split	40c bu	50c	50c
Peas, in cartons, papers, etc	1c lb	1c	1c
Orchids, palms, drecoenas, crotons and azaleas	25 p c	Free	30 p c
Tulips, hyacinths, narcissi, jonquils, lilies, and all other bulbs, bulbous roots, cultivated for their flowers	25 p c	Free	30 p c
Natural flowers of all kinds suitable for decorative purposes	25 p c	Free	30 p c
Stocks, cuttings, or seedlings of Myrabolan plum, Mahaleb cherry, 3 years old or less, per 1,000	50c & 15 p c	Free	.....
Stocks of pear, apple, quince, and St. Julien plum, 3 years old or less, and evergreen seedlings, per 1,000	$1 & 15 p c	Free	.....
Rose plants, budded, grafted, or grown on their own roots	2½c ea	Free	.....
Stocks, cuttings, and seedlings of all fruit and ornamental trees, deciduous and evergreen shrubs and vines, and all trees, shrubs, plants and vines known as nursery stock, not provided for	25 p c	Free	.....
Potatoes	25c bu	15c	25c
Castor beans or seeds	25c	25c	50c
Flaxseed or linseed and other oil seeds not specially provided for	25c	25c	25c
Poppy seed	15c bu	.....	.....
Seeds of all kinds not specially provided for	30 p c	10 p c	20 p c
Straw	$1.50 ton	15 p c	30 p c
Teazles	30 p c	15 p c	30 p c
Vegetables in natural state not specially provided for	25 p c	10 p c	10 p c
Fish—			
Anchovies, sardines, sprats, brislings, or sardels, packed in oil or otherwise, in bottles,			

Articles.	Dingley Law.	Wilson Law.	McKinley Law
jars, tin boxes, or cans, containing 7½ cubic inches or less, per bottle, jar, or can..	1½c	.....	.....
Containing more than 7½ and not more than 21 cubic in...	2½c	.....	.....
Containing more than 21 and not more than 33 cubic in...	5c	.....	.....
Containing more than 33 and not more than 70 cubic in...	10c	.....	.....
If in other packages	40 p c	40 p c	40 p c
All other fish in tin packages, except shellfish.....	30 p c	20 p c	30 p c
Fish in packages containing less than ½ barrel not provided for.....	30 p c	20 p c	30 p c
Fresh water fish not specially provided for	¼c lb	Free	Free
Herring, pickled or salted.....	⅛c lb	½c	¼c
Herring, fresh.....	¼c	⅛c	¼c
Fish, fresh, smoked, dried, salted, pickled, frozen, packed in ice or otherwise for preservation, not provided for...	¾c lb	.....	.....
Fish, skinned or boned.....	1¼c	¾c	¾c
Mackerel, halibut or salmon, fresh, pickled, or salted.....	1c	¾c	1c
Fruits and Nuts—			
Apples, peaches, quinces, cherries, plums, and pears, green or ripe	25c bu	20 p c	25c
Apples, peaches, pears, and other edible fruits, including berries when dried or prepared in any manner, not provided for.....	2c lb	20 p c	2c
Berries, edible, in their natural condition.....	1c qt	.....	.....
Cranberries	25 p c	Free	.....
Comfits, sweetmeats, and fruits preserved in sugar, molasses, spirits, or in their own juices, not provided for.....	1c lb & 35 p c	30 p c	35 p c
If containing over 10 p. c. alcohol, not provided for.....	35 p c	36 p c	30 p c
On alcohol contained over 10 p. c.....	$2.50 per gal	Spirit duty	Spirit duty
Jellies of all kinds.....	35 p c	30 p c	35 p c
Pineapples in their own juice..	25 p c	20 p c	25 p c
Figs, plums, prunes and prunelles.....	2c lb	1½c	2½c
Raisins and other dried grapes	2½c	1½c	2½c
Dates	½c	30 p c	½c
Currants	2c	1½c	Free
Olives, in bottles, jars, etc....	25c gal	20 p c	Free
In casks, or other than in bottles, etc.....	15c	20 p c	Free
Grapes, in barrels, or other packages.....	20c c f	20 p c	60c brl
Oranges, lemons, limes, grape fruit, shaddocks, or pomelos	1c lb	8c c f	13c pkg of 1¼c
Orange peel or lemon peel, preserved, candied or dried, and cocoanut meat, desiccated, shredded, or cut.....	2c lb	30 p c	2c
Citron or citron peel, preserved, candied or dried.....	4c	20 p c	20 p c
Pineapples, in barrels or other packages.....	7c c f	20 p c	Free
In bulk, per 1,000.....	$7	20 p c	Free
Almonds, not shelled	4c lb	3c	5c
Clear almonds, shelled.....	6c	5c	7½c
Filberts and walnuts of all kinds, not shelled	3c	2c	3c
Shelled	5c	4c	6c
Peanuts, unshelled	½c	20 p c	1c
Shelled	1c	20 p c	1½c
Nuts of all kinds, shelled or unshelled, not provided for.	1c	20 p c	1½c
Meat Products—			
Bacon and hams.....	5c lb	20 p c	5c
Fresh beef, veal, mutton, and pork	2c	20 p c	25 p c
Meats of all kinds, prepared or preserved, not provided for..	25 p c	20 p c	25 p c
Extract of meat, not provided for	35c	20 p c	25 p c
Fluid extract of meat	15c	20 p c	25 p c
Lard.....	2c	20 p c	25 p c
Poultry, live	3c	2c	3c
Dressed.....	5c	3c	5c
Tallow.....	¾c	Free	1c
Wool grease.....	½c	Free	½c
Miscellaneous Products—			
Chicory root, unground.....	1c lb	Free	Free
Burnt, ground, or unground, in rolls, or otherwise, not provided for	2½c	2c	2c
Chocolate and cocoa, prepared, not provided for, valued at not over 15c lb.....	2½c	2c	2c
Valued over 15c, not above 24c lb.....	2½c & 10 p c	2c	2c
Valued above 24c and not above 35c lb	5c & 10 p c	2c	2c
Valued above 35c lb.....	50 p c	35 p c	2c
Powdered cocoa, unsweetened.	5c lb	2c	2c
Cocoa butter or cocoa butterine	3½c	3½c	3½c
Dandelion root and acorns, prepared, and articles used as coffee, not provided for.....	2½c	1½c	1½c
Salt in bags, sacks, barrels, or other packages, per 100 lbs..	12c	Free	12c
In bulk	8c	Free	8c
The provisions of the McKinley law remitting the duty paid on salt used in curing fish on vessels or on the shores of navigable waters of the United States, and in packing meats, is re-enacted			
Starch and all preparations used as starch.....	1½c lb	1⅜c	2c
Dextrine, burnt starch, gum substitute, or British gum....	2c	1½c	1½c
Spices—			
Mustard prepared in bottles or otherwise.....	10c	25 p c	10c
Capsicum, or red pepper.....	2½c	2½c	2½c
Sage.....	1c	1c	3c
Spices not provided for.....	3c	3c	4c
Vinegar	7½c pr'f gal	7½c gal	.....

Schedule H—Spirits, Wines, and Other Beverages.

Articles.	Dingley Law.	Wilson Law.	McKinley Law
Spirits—			
Brandy and other spirits, manufactured or distilled from grain or other materials, and not specially provided for, per proof gallon	$2.25 per gal	$1.80	$2.50
Cordials, liqueurs, arrack, absinthe, Kirschwasser, ratafia, and other spirituous beverages or bitters of all kinds, containing spirits, and not specially provided for.....	$2.25 per gal	$1.80	$2.50
Imitations of brandy or spirits or wines, imported by any names whatever, shall be subject to the highest rate of duty provided for the genuine articles respectively intended to be represented; and in no case less than.....	$1.50 gal	$1	$1.50
Bay rum or bay water, whether distilled or compounded, of first proof, and in proportion for any greater strength than first proof.....	$1.50 gal	$1	$1.50
Wines—			
Champagne and all other sparkling wines, in bottles, containing each not more than one quart and more than one pint, per doz.....	$8	$8	$8
Containing not more than one pint each and more than one-half pint, per doz.....	$4	$4	$4
Containing one-half pint each or less, per doz	$2	$2	$2
In bottles or other vessels, containing more than one quart each in addition to $8 per dozen bottles, on the quantity in excess of one quart, per gal..	$2.50	$2.50	$2.50
Still wines, including ginger wine and vermouth, in casks or packages other than bottles or jugs, containing 14 p c or less of absolute alcohol	40c gal	30 to 50c	50c
Containing more than 14 p c alcohol.....	50c	30 to 50c	50c
In bottles or jugs, per case of one doz., containing each not more than one quart, and less than one pint, or 24 bottles or jugs, containing each not more than one pint, per case.	$1.60	$1.60	$1.60
Excess of these quantities is subject to a duty per pint or fractional part thereof of....	5c	5c	5c
Ale, porter, and beer, in bottles or jugs, per gal..... But no separate or additional duty shall be assessed on the bottles or jugs.	40c	30c	40c
Otherwise than in bottles or jugs, per gal	20c	15c	20c
Malt extract, fluid, in casks, per gal.....	20c	15c	20c
In bottles or jugs.....	40c	30c	40c
Solid or condensed.....	40 p c	30 p c	40 p c
Cherry juice and prune juice, or prune wines and other fruit juice not specially provided for, containing no alcohol or not more than 18 p c of alcohol, per gal.....	60c	50c	60c
If containing more than 18 p c of alcohol.....	60c gal & $2.07 per gal on spr's	$1.80 gal	$2.50 gal
Ginger ale, ginger beer, lemonade, soda water, and other similar beverages, in plain, green or colored, molded or pressed glass bottles, containing each not more than ¾ of a pint, per doz.....	18c	20 p c	15c
Containing more than ¾ of a pint each and not more than 1½ pints, per doz.....	28c	20 p c	28c
If imported otherwise than in plain green or colored, molded or pressed glass bottles, or in such bottles containing more than 1½ pints each, duty shall be collected on the bottles or other colorings at the rate charged thereon if imported empty.....	50c gal	.....	50c
All mineral waters, and all imitations of natural mineral waters, and all artificial mineral waters not specially provided for, in green or colored glass bottles, containing not more than one pint per doz..	20c	20 p c	16c
If containing more than one pint and not more than one quart, per doz.....	30c	20 p c	25c
If imported otherwise than in plain, green or colored glass bottles, or if imported in such bottles containing more than one quart, per gal.....	24c	20 p c	20c

Schedule I—Cotton Manufactures.

Articles.	Dingley Law.	Wilson Law.	McKinley Law
Cotton thread and carded yarn, warps or warp yarn, except spool thread or cotton, not colored, bleached, dyed, etc., up to and including No. 15...	3c lb	3c lb	.....
On all numbers exceeding No. 15 and up to No. 30.....	1-5c per No	1-5c per No	.....
Exceeding No. 30.....	¼c	¼c	.....
Colored, bleached, dyed, etc., all numbers up to 20.....	6c	6c	.....
Exceeding No. 20, and up to No. 80, per No., per lb.....	¼c	.....	.....
No. 80 and above, per No., per lb	3-10c	.....	.....
Cotton card laps, roping, sliver or roving	45 p c	.....	.....
Spool thread of cotton, including crochet, etc., on spools or reels; spools 100 yards each per doz.....	6c	2½c	7c
For each additional 100 yards, per dozen.....	6c	5½c	7c
If otherwise than on spools or reels, for each 100 yards or fraction.....	½c	.....	.....
Cotton cloth, not exceeding 50 threads to the square inch, not bleached, per yard.....	1c	1c	2c
Bleached, per yard	1¼c	1¼c	2½c
Dyed, colored, or printed, per yard.....	2c	2c	4c
Exceeding 50 threads, and not exceeding 100 threads to sq. inch; not bleached; not exceeding 6 yds to lb., per yd..	1¼c	1¼c	.....
Over 6 and not over 9 yards to lb., per yard.....	1⅜c	1½c	.....
Over 9 yards to lb.....	1¾c	1¾c	.....
Bleached: Not over 6 yards to lb., per yard.....	1⅜c	1½c	.....
Over 6 and not over 9 yards...	1¾c	1¾c	.....
Over 9 yards to lb.....	2¼c	2¼c	.....
Dyed, colored, or printed; not over 6 yards to lb., per yard.	2¾c	2¾c	.....
Over 6 and not over 9.....	3¼c	3¼c	.....
Over 9 yards to lb.....	3½c	3½c	.....
Not over 100 threads, not bleached, valued at over 7c per yard.....	25 p c	25 p c	35 p c
Over 100 and not over 150 threads to the sq. inch, not bleached, not over 4 sq. yds. to lb., per yard.....	1½c	1½c	.....
Over 4 and not over 6.....	2c	2c	.....
Over 6 and not over 8.....	2½c	2½c	.....
Over 8.....	2¾c	2¾c	.....
If bleached and not exceeding 4 sq. yds. to the lb., per sq. yard.....	2½c	2⅝c	.....
Over 4 and not over 6 sq. yds. per lb	3c	3c	.....
Over 6 and not over 8.....	3½c	3½c	.....
Over 8	3¾c	3¾c	.....

Articles.	Dingley Law.	Wilson Law.	McKinley Law
Dyed, not over 4 yards to lb	3⅛c	3½c	.....
Over 4 and not over 6	3¾c	3¾c	.....
Over 6 and not over 8	4¼c	4¼c	.....
Over 8	4⅜c	4½c	.....
Over 100 and not over 150 threads to the sq. in., not bleached, etc., valued at over 9c sq. yd	30 p c	.....	.....
Bleached, valued at over 11c	35 p c	.....	.....
Dyed, colored, etc., valued at over 12½c	35 p c	.....	.....
Exceeding 150 and not over 200 threads to square inch, not bleached, not over 3½ yards to lb., per yd	2c	2c	.....
Over 3½ and not over 4⅜	2¾c	2¾c	.....
Over 4½ and not over 6	3c	3c	.....
Over 6	3½c	3½c	.....
Bleached, not over 3½ yds to lb	2¾c	2¾c	.....
Over 3½ and not over 4½	3½c	3½c	.....
Over 4⅜ and not over 6	4c	4c	.....
Over 6	4¼c	4¼c	.....
Dyed, not over 3½ yds to lb	4⅜c	4¼c	.....
Over 3½ and not over 4½	4½c	4½c	.....
Over 4½ and not over 6	4¾c	4¾c	.....
Over 6	5c	5c	.....
Exceeding 150 and not over 200 threads to the square inch, not bleached, etc., valued over 10c per square yard	35 p c	.....	45 p c
Bleached, valued at over 12c square yard	35 p c	.....	45 p c
Dyed, etc., valued at over 12½c square yard	40 p c	.....	45 p c
Exceeding 200 and not exceeding 300 threads to square inch, not bleached, not over 2½ yards to pound, per yard	3½c	3c	.....
Over 2½ and not over 3½	4c	3½c	.....
Over 3½ and not over 5	4½c	4c	.....
Over 5	5c	4½c	.....
Bleached, not over 2½ yards to pound	4½c	4c	.....
Over 2½ and not over 3½	5c	4½c	.....
Over 3½ and not over 5	5½c	5c	.....
Over 5	6c	5½c	.....
Dyed, not over 3½ yards to pound, per yard	6¼c	5¾c	.....
Exceeding 3½ square yards to pound	7c	.....	.....
Not bleached, dyed, etc., valued at over 12½c per square yard; bleached, valued at over 15c square yard, and dyed, valued at over 17½c square yard	40 p c	.....	.....
Exceeding 300 threads to the square inch, not bleached, and not over 2 yards to the pound, per yard	4c	.....	.....
Over 2 and not over 3 yards, per pound	4½c	.....	.....
Over 3 and not over 4	5c	.....	.....
Over 4	5½c	.....	.....
Bleached, not over 2 yards to the pound	5c	.....	.....
Over 2 and not over 3	5½c	.....	.....
Over 3 and not over 4	6c	.....	.....
Over 4	6½c	.....	.....
Dyed, not over 3 yards to the pound, per yard	6½c	.....	.....
Over 3	8c	.....	.....
Not bleached, dyed, etc., valued at over 14c per square yard; bleached, valued at over 16c per square yard, and dyed, valued at over 20c per square yard	40 p c	.....	.....
Cloth composed of cotton or other vegetable fiber and silk, of which cotton is the chief value, per square yard	8c & 30 p c	.....	.....
None such to pay less than	50 p c	.....	.....
Cotton cloth filled or coated, per square yard	3c & 20 p c	.....	.....
Handkerchiefs and mufflers to pay same duty as on cotton cloth in them, not less than	45 p c	.....	.....
If hemstitched, additional	10 p c	.....	.....
If embroidered, additional	60 p c	.....	.....
Cotton cloth, known as lappets, shall pay in addition to duty on cotton cloth valued at less than 7c per yard	1c	.....	.....
At more than 7c	2c	.....	.....
Clothing, ready made, and wearing apparel	50 p c	40 p c	50 p c
Articles having India rubber as a component material	15c lb & 50 p c	50 p c	50c & 50 p c
Plushes, velvets, velveteens, corduroys and all pile fabrics, cut or uncut, any composed of cotton or other vegetable fiber, not bleached or dyed	9c s y & 25 p c	40 p c	10c & 20 p c
Bleached or dyed	12c & 25 p c	47½ p c	12c & 20 p c
Bias dress facings from plushes, velvets, or other pile fabrics, the foregoing rates of duty and additional	10 p c	.....	.....
None of such fabrics to pay less than	47½ p c	.....	.....
Curtains, table covers, and articles manufactured of cotton chenille	50 p c	40 p c	60 p c
Hosiery made on knitting machines	30 p c	30 p c	35 p c
Stockings, hose and half hose, fashioned or shaped wholly or in part by knitting machines, of cotton or other vegetable fiber, finished or unfinished, valued at not more than $1 per doz., per doz. pairs	50c & 15 p c	50 p c	20c & 20 p c
Valued at more than $1, and not more than $1.50	60c & 15 p c	50 p c	50c & 30 p c
Valued at more than $1.50, and not more than $2	70c & 15 p c	50 p c	50c & 30 p c
Valued at more than $2, and not more than $3	$1.20 & 15 p c	50 p c	75c & 40 p c
Valued at more than $3, and not more than $5	$2 & 15 p c	50 p c	$1 & 40 p c
Valued at more than $5	55 p c	50 p c	$1 & 40 p c
Shirts, drawers, pants, vests, etc., valued at not more than $1.50 per doz	60c & 15 p c	50 p c	35 p c
Valued at more than $1.50, and not more than $3	$1.10 & 15 p c	50 p c	$1.25 & 35 p c
Valued at more than $3, and not more than $5	$1.50 & 25 p c	50 p c	$1.25 & 40 p c
Valued at more than $5, and not more than $7	$1.75 & 35 p c	50 p c	$1.50 & 40 p c
Valued at more than $7, and not more than $15	$2.25 & 35 p c	50 p c	$2 & 40 p c
Valued above $15	50 p c	50 p c	$2 & 40 p c
Bandings, beltings, bindings, bone casings, cords, garters, suspenders, and braces, gorings, lining for bicycle tires, ribbons, tapes, tubing, webs, or webbing,	45 p c	45 p c	40 p c
Spindle banding, woven, braided, or twisted lamp, stove, or candle wicking	10c lb & 15 p c	45 p c	40 p c
Loom harness or healds	50c lb & 25 p c	35 p c	40 p c
Boot, shoe, and corset lacings	25c lb & 15 p c	.....	.....
Labels for ornaments	50c lb & 30 p c	35 p c	40 p c
Cotton damask	40 p c	35 p c	40 p c
Cotton duck	35 p c	35 p c	40 p c
All other manufactures of cotton not specially provided for	45 p c	35 p c	40 p c

Schedule J—Flax, Hemp, Jute, and Manufactures.

Articles.	Dingley Law.	Wilson Law.	McKinley Law
Flax straw	$5 ton	Free	$5
Flax, not hackled or dressed	1c lb	Free	1c
Flax, hackled	3c	Free	3c
Tow of flax	$20 ton	Free	½c lb
Hemp and tow of hemp	$20 ton	Free	½c lb
Hemp, hackled	$40 ton	Free	$50
Single yarns, made of jute, not finer than 5 lea	1c lb & 10 p c	30 p c	35 p c
Finer than 5 lea	35 p c	30 p c	35 p c
Cables and cordage of istle, Tampico fiber, Manila, sisal grass, or mixture	1c lb	35 p c	.....
Cables and cordage made of hemp	2c	35 p c	.....
Threads, twines, or cords made from yarn, not finer than 5 lea or number of flax, hemp, or ramie, or of which either of these substances is a material of chief value	13c lb	35 p c	.....
From yarn finer than 5 lea, for each lea in excess of 5, additional	¾c	.....	.....
Single yarns, in the gray, of flax, hemp, or ramie, not finer than 8 lea	7c lb	35 p c	.....
Finer than 8 lea and not finer than 80 lea	40 p c	35 p c	.....
Finer than 80 lea	15 p c	35 p c	.....
Flax gill netting, nets, webs and seines, same duty as on material of which they are made.	25 p c addit'n'l	40 p c	15c lb & 35 p c
Floor mattings, plain or fancy, from straw, round or split, or other vegetable substance, not provided for, including Chinese straw mats, etc., not exceeding 10c square yard	3c sq yd	Free	Free
Exceeding 10c	7c yd & 25 p c	Free	Free
Carpets, carpetings, mats and rugs of flax, hemp, jute, or other vegetable fiber, except cotton, valued at not more than 15c per square yard	5c sq yd & 35 p c	20 p c	.....
Valued above 15c square yard.	10c & 35 p c	20 p c	.....
Hydraulic hose, made in whole or in part of flax, hemp, ramie or jute	20c lb	40 p c	20c lb
Tapes, composed wholly or in part of flax, with or without metal threads, etc	40 p c	25 p c	50 p c
Oilcloth for floors, stamped, painted, or printed, including linoleum, corticene, figured or plain, and all other oilcloth (except silk oilcloth) not specially provided for	8c sq yd & 15 p c	25 p c or 40 p c	.....
Oilcloths for floors, and linoleum, 12 feet and over in width, inlaid and cork carpets	20c sq yd & 20 p c	25 p c or 40 p c	40 p c
Shirt collars and cuffs composed of cotton	45c doz pieces & 15 p c	40 p c	15c doz & 35 p c
Whole or in part of linen	40c doz & 20 p c	20c doz & 30 p c	30c doz & 20 p c
Plain woven fabrics of single jute yarns, not exceeding 60 in. wide, weighing not less than 6 oz per square yard, not exceeding 30 threads per square inch	5⅝c lb & 15 p c	Free	15⅝c lb
Exceeding 20 and not exceeding 55 threads	7⅝c lb & 15 p c	Free	15⅝c lb
Bags or sacks, plain woven fabrics, single jute yarn, not dyed, stained, or bleached, not exceeding 30 threads to square inch	7⅝c lb & 15 p c	Free	15⅝c lb
Bagging for cotton, gunny cloth, similar fabrics, for covering cotton, of single yarns of jute, etc., not bleached, colored, or stained, not exceeding 16 threads to the square inch, weighing not less than 15 oz per square yd.	6-10c lb	.....	.....
Laces, lace window curtains, tidies, bed sets, flouncings, and other lace articles; handkerchiefs, napkins, and other articles wholly or part of lace, or in imitation; nets, veils, ruchings, tuckings, fleshings, and quillings; embroideries, and all trimmings, including braids, edgings, insertings, flouncings, galloons, gorings, and bands; wearing apparel, handkerchiefs, and other fabrics embroidered in any manner; tamboured articles, or wearing apparel; hemstitched or tucked flouncings or skirtings; articles wholly or in part of rufflings, tuckings or ruchings; all foregoing of flax, cotton, or other vegetable fiber, not provided for, in part India rubber or otherwise	60 p c	50 p c	60 p c
Lace window curtains, pillow shams, bed sets, finished or unfinished, made on the Nottingham lace curtain machines, or on the Nottingham warp machines, composed of cotton or other vegetable fiber, when counting five points or spaces between the warp threads to the inch	1c sq yd & 20 p c	50 p c	60 p c
Counting more than five points or spaces to the inch in addition for each point to the inch in excess of five	½c & 20 p c	50 p c	60 p c
None of the above to pay less than	50 p c	.....	.....

Articles.	Dingley Law.	Wilson Law.	McKinley Law
Pile fabrics, in which flax is of chief value	60 p c	35 p c	50 p c
Handkerchiefs, composed of flax, hemp, ramie, or other vegetable fiber, in the piece or otherwise, wholly or partly finished, not hemmed, or hemmed only	50 p c	40 p c	60 p c
If hemstitched, or imitation hemstitched, or revered, or with drawn threads, but not embroidered, or initialed	55 p c	50 p c	60 p c
Woven fabrics, not provided for, of flax, hemp, or ramie in chief value, weighing 4½ ozs. or more per sq. yd., when containing not more than 60 threads to sq. in	1¾c s.y. & 30 p c	35 p c	50 p c
Containing more than 60 and not more than 120 threads to sq. in	2¾c & 30 p c	35 p c	50 p c
Containing more than 120 and not more than 180 threads to sq. in	6c & 30 p c	35 p c	50 p c
Containing more than 180 threads to sq. in	9c & 30 p c	.....	.....
None of the foregoing woven fabrics less than	50 p c	.....	.....
Woven fabrics of flax, hemp, or ramie, or in which they are chief value, including such as is known as shirting cloth, weighing less than 4½ oz. per sq. yd., and containing more than 100 threads to sq. in	35 p c	35 p c	50 p c
All such manufactures of flax, hemp, ramie, or other vegetable fiber, or in which they are chief value, not provided for	45 p c	35 p c	50 p c

Schedule K—Wool and Manufactures of Wool.

All wools, hair of the camel, goat, alpaca, and other like animals shall be divided, for the purpose of fixing the duties to be charged thereon, into the three following classes:

Class one, that is to say, merino, mestiza, metz, or metis wools, or other wools of merino blood, immediate or remote, down clothing wools, and wools of like character with any of the preceding, including Bagdad wool, China lamb's wool, Castle Branca, Adrianople skin wool, or butcher's wool, and such as have been heretofore usually imported into the United States from Buenos Ayres, New Zealand, Australia, Cape of Good Hope, Russia, Great Britain, Canada, Egypt, Morocco, and elsewhere, and all wools not hereinafter described or designated in classes two and three.

Class two, that is to say, Leicester, Cotswold, Lincolnshire, down combing wools, Canada long wools, or other like combing wools of English blood, and usually known by the terms herein used, and also hair of the camel, Angora goat, alpaca, and other like animals.

Class three, that is to say, Donskoi, native South American, Cordova, Valparaiso, native Smyrna, Russian camel's hair, and all such wools of like character, as have been heretofore usually imported into the United States from Turkey, Greece, Syria, and elsewhere, excepting improved wools hereinafter provided for.

The standard samples of all wools which are now or may be hereafter deposited in the principal custom-houses of the United States, under the authority of the Secretary of the Treasury, shall be the standard for the classification of wools under this act, and the Secretary of the Treasury is authorized to renew these standards, and to make such additions to them from time to time as may be required, and he shall cause to be deposited like standards in other custom-houses of the United States when they may be needed.

Whenever wools of class three shall have been improved by the admixture of merino or English blood from their present character, as represented by the standard samples now or hereafter to be deposited in the principal custom-houses of the United States, such improved wools shall be classified for duty either as class one or as class two, as the case may be.

The duty on wools of the first class which shall be imported washed shall be twice the amount of the duty to which they would be subjected if imported unwashed, and the duties on wools of the first and second classes which shall be imported scoured shall be three times the duty to which they would be subjected if imported unwashed. The duty on wools of the third class if imported in condition for use in carding or spinning into yarns, or which shall not contain more than 8 per cent. of dirt or other foreign substance, shall be three times the duty to which they would otherwise be subjected.

Unwashed wools shall be considered such as shall have been shorn from the sheep without any cleansing—that is, in their natural condition. Washed wools shall be considered such as have been washed with water only on the sheep's back or on the skin. Wools of the first and second classes washed in any other manner than on the sheep's back or on the skin shall be considered as scoured wool.

The duty upon wool of the sheep, or hair of the camel, Angora goat, alpaca, and other like animals of class one and class two, which shall be imported in any other than ordinary condition, or which has been sorted or increased in value by the rejection of any part of the original fleece, shall be twice the duty to which it would be otherwise subject; provided, that skirted wools, as imported in 1890 and prior thereto, are hereby excepted.

The duty upon wool of the sheep, or hair of the camel, Angora goat, alpaca, and other like animals of any class which shall be changed in its character or condition for the purpose of evading the duty, or which shall be reduced in value by the admixture of dirt or any other foreign substances, shall be twice the duty to which it would be otherwise subject.

When the duty assessed upon any wool equals three times or more that which would be assessed if said wool was imported unwashed, the duty shall not be doubled on account of the wool being sorted.

If any bale or package of wool or hair specified in this act, imported as of any specified class, or claimed by the importer to be dutiable as of any specified class, shall contain any wool or hair subject to a higher rate of duty than the class so specified, the whole bale or package shall be subject to the highest rate of duty chargeable on wool of the class subject to such higher rate of duty, and if any bale or package be claimed by the importer to be shoddy, mungo flocks, wool, hair, or other material of any class specified in this act, and such bale contain any admixture of any one or more of said materials or any other material, the whole bale or package shall be subject to duty at the highest rate imposed upon any article in said bale or package.

Articles.	Dingley Law.	Wilson Law.	McKinley Law
Wools and hair of the first class	11c lb	Free	11c
Wools and hair of the second class	12c	Free	12c
Wools of the third class and camel's hair of the third class, valued at 12c or less.	4c	Free	32 p c
Wools of the third class and camel's hair of the third class, valued above 12c	7c	Free	50 p c

The duty on wools on the skin shall be 1c less per pound than is imposed on other wools of the same class.

Top waste, slubbing waste, roving waste, ring waste, and garneted waste	30c lb	Free	30c
Shoddy	25c	15c	30c
Noils wool extract, yarn waste, thread waste, and all waste wholly or part of wool, not provided for	20c	Free	30c
Woolen rags, mungo and flocks	10c	Free	10c

Wool and hair, advanced beyond washed or scoured condition, not provided for, shall be subject to same duties as imposed on manufactures of wool not specially provided for.

Yarns wholly and in part of wool valued at not more than 30c per lb	27½c & 40 p c	30 p c	.....
Valued at more than 30c	38½c & 40 p c	30 or 40 p c	.....
Cloths, knit fabrics and all manufactures wholly or part of wool, not provided for, valued at not more than 40c per lb	33c & 50 p c	40c	.....
Valued above 40c and not above 70c per lb	44c & 50 p c	40c or 50 p c	.....
Valued at over 70c	44c & 55 p c	Free	.....

The McKinley law provided on woolen or worsted cloths, shawls, knit fabrics and all fabrics made on knitting machines and frames, and all manufactures of every description made wholly or in part of wool, worsted, hair of camel, goat, alpaca, or other animal, not specially provided for, valued at not more than 30 cents a pound, the duty shall be three times the duty imposed on a pound of unwashed wool of the first class, and in addition 45 per cent.; valued at more than 30 cents and not more than 40 cents a pound, the duty shall be three and one-half times that on unwashed wool of the first class, and in addition 40 per cent.; valued above 40 cents a pound, the duty shall be four times that on unwashed wool of the first class, and in addition thereto 50 per cent.

Articles.	Dingley Law.	Wilson Law.	McKinley Law
Blankets, and flannels for underwear, composed wholly or in part of wool, valued at not more than 40c lb	22c lb & 30 p c	25 or 30 p c	.....
Valued at more than 40c and not more than 50c lb	33c & 35 p c	35 p c	.....
Valued at more than 50c lb	33c & 40 p c	35 p c	.....

Flannels valued above 50 cents a pound shall pay the same as women's and children's dress goods, etc.

Blankets over three yards in length pay same duty as on cloths.

The McKinley law provided on blankets, hats of wool, and flannels for underwear, composed wholly or in part of wool, etc., valued at not more than 30 cents a pound, the duty per pound shall be the same as that imposed on one and one-half pounds of unwashed wool of the first class, and in addition 30 per cent.; valued at more than 30 cents and not more than 40 cents per pound, twice the duty on unwashed wool of the first class; valued at more than 40 cents, and not more than 50 cents a pound, three times the duty on unwashed wool of the first class, and in addition on all the above named 35 per cent.; on blankets and hats of wool, etc., valued at more than 50 cents a pound, three and one-half times the duty on unwashed wool of the first class, and 40 per cent. Flannels composed wholly or in part of wool, etc., valued above 50 cents a pound, shall be classed and pay the same duty as women's and children's dress goods, coat linings, Italian cloths, and goods of similar character and description.

Articles.	Dingley Law.	Wilson Law.	McKinley Law
Women's and children's dress goods, coat linings, Italian cloths, and goods similar, of which warp is wholly of cotton, or other vegetable material, with remainder wholly or partly wool, valued at not exceeding 15c sq. yard	7c sq yd & 50 p c	40 p c	7c & 40 p c
Valued at more than 15c sq. yd.	8c & 50 p c	40 or 50 p c	8c & 50 p c
Valued above 70c per lb	55 p c	40 or 50 p c	8c & 50 p c
Provided that on foregoing weighing over 4 oz. per sq. yd. the duty shall be the same as imposed in schedule on cloths.			
Women's and children's dress goods, coat linings, Italian cloths, bunting, and similar goods, wholly or in part of wool, not provided for	11c s y & 50 p c	40 or 50 p c	12c & 50 p c
Valued not above 70c per lb	50 p c	40 or 50 p c	12c & 50 p c
Valued above 70c per lb	55 p c	40 or 50 p c	12c & 50 p c
The foregoing, weighing over 4 oz. per sq. yd., the duty shall be the same as imposed in schedule on cloths.			
Clothing, ready made, and articles of wearing apparel of every description, including shawls, knitted or woven, and knitted articles of every description, made up of manufactured, wholly or in part, felts not woven and not specially provided for, wholly or in part of wool	44c & 60 p c	45 or 50 p c	49½c & 60 p c
Webbings, gorings, suspenders, braces, beltings, bindings, braids, galloons, fringes, gimps, cords, cords and tassels, dress trimmings, laces and embroideries, head nets, buttons, or barrel buttons, or buttons of other forms, for tassels or ornaments, and manufactures of wool ornaments with beads or spangles, made of wool, etc., or of which wool, etc., is a component material, in part India rubber or otherwise	50c lb & 60 p c	50 p c	60c & 60 p c
Aubusson, Axminster, moquette, and chenille carpets, figured or plain, and all carpets of like character or description	60c s y & 40 p c	40 p c	60c & 40 p c
Saxony, Wilton, and Tournay velvet carpets, figured or plain, and all carpets and carpetings of like character and description	60c & 40 p c	40 p c	60c & 40 p c
Brussels carpets, figured or plain, and all carpets and carpeting of like description.	44c s y & 40 p c	40 p c	44c & 40 p c
Velvet and tapestry carpets, figured or plain, printed on the warp or otherwise, and all carpets or carpeting of like character or description	40c & 40 p c	40 p c	40c & 40 p c
Tapestry Brussels, figured or plain, and all carpets or carpeting of like description, printed on the warp or otherwise	28c & 40 p c	42½ p c	28c & 40 p c
Treble ingrain, three-ply, and all chain Venetian carpets	22c & 40 p c	32½ p c	19c & 40 p c

Articles.	Dingley Law.	Wilson Law.	McKinley Law
Wool, Dutch, and two-ply ingrain carpets	18c & 40 p c	30 p c	19c & 40 p c
Carpets woven whole for rooms, and Oriental, Berlin, etc., and similar rugs	10c s ft & 40 p c	40 p c	50 p c
Druggets and bockings, printed, colored, or otherwise	22c s y & 40 p c	30 p c	22c & 40 p c
Carpets and carpeting of wool, flax or cotton, or composed in parts of either, not specially provided for	50 p c	30 p c	50 p c
Mats, rugs, screens, covers, hassocks, bed sides, art squares, and other portions of carpets or carpeting, made wholly or in part of wool, and not specially provided for, shall be subject to the rate of duty imposed on carpets or carpeting of like description.			

Whenever in any schedule of this act a duty is provided for or imposed on any goods, wares, or merchandise composed wholly or in part of wool, the word "wool" shall be held to include wool or hair of the sheep, camel, goat, alpaca, or other animal, whether prepared by the woolen, worsted, felt, or any other process of manufacture.

Schedule L—Silks and Silk Goods.

Articles.	Dingley Law.	Wilson Law.	McKinley Law
Silk partially manufactured from cocoons or from waste silk, and not further advanced or manufactured than carded or combed silk	40c lb	20 p c	50c
Thrown silk, not more advanced than singles, tram, organzine, sewing silk, twist, floss, and silk threads or yarns of every description, except spun silk	30 p c	30 p c	30 p c
Spun silk in skeins, cops, warps or on beams, valued at not exceeding $1 per lb	20c lb & 15 p c	30 p c	35 p c
Valued at over $1 per lb and not exceeding $1.50 per lb	30c & 15 p c	30 p c	35 p c
Valued at over $1.50 lb and not exceeding $2 per lb	10c & 15 p c	30 p c	35 p c
Valued at over $2 per lb and not exceeding $2.50 per lb	50c & 15 p c	30 p c	35 p c
Valued at over $2.50 per lb	60c & 15 p c	30 p c	35 p c
But in no case shall the foregoing articles pay a less rate of duty than 35 p c.			
Velvets, velvet or plush ribbons, chenilles or other pile fabrics, composed of silk or of which silk is the component material of chief value, cut or uncut, not provided for	$1.50 lb & 15 p c	$1.50	$1.50 & 15 p c
Plushes, composed of silk, or of which silk is the component material of chief value	$1 & 15 p c	$1	$1.50 & 15 p c
In no case shall foregoing pay less than 50 p c.			
Woven fabrics, in the piece, not provided for, weighing not less than 1⅓ oz. per sq. yard, and not more than 8 oz. per square yard, and containing not more than 20 p c in weight of silk, if in the gum.	50c lb	45 p c	50 p c
If dyed in the piece	60c lb	45 p c	50 p c
If containing more than 20 p c and not more than 30 p c in weight of silk, if in the gum.	65c	45 p c	50 p c
If dyed in the piece	80c	45 p c	50 p c
If containing more than 30 and not more than 45 p c in weight of silk, if in the gum	90c	45 p c	50 p c
If dyed in the piece	$1.10	45 p c	50 p c
If dyed in the thread or yarn and containing not more than 30 p c in weight of silk, if black (except selvedges)	75c	45 p c	50 p c
If other than black	90c	45 p c	50 p c
If containing more than 30 and not more than 45 p c in weight of silk, if black (except selvedges)	$1.10	45 p c	50 p c
If other than black	$1.30	45 p c	50 p c
If containing more than 45 p c in weight of silk, or if composed wholly of silk, if dyed in the thread or yarn, and weighted in the dyeing so as to exceed the original weight of the raw silk, if black (except selvedges)	$1.50	45 p c	50 p c
If other than black	$2.25	45 p c	50 p c
If dyed in the thread or yarn, and the weight is not increased by dyeing beyond the original weight of raw silk	$3	45 p c	50 p c
If in the gum	$2.50	45 p c	50 p c
If boiled off, or dyed in the piece, or printed	$3	45 p c	50 p c
If weighing less than 1⅓ ozs. and more than ⅓ oz. per sq yd, if in the gum or if dyed in the thread or yarn	$2.50	45 p c	50 p c
If weighing less than 1⅓ ozs. and more than ⅓ oz. per sq yd, if boiled off	$3	45 p c	50 p c
If dyed or printed in the piece	$3.25	45 p c	50 p c
If weighing not more than ⅓ oz. per sq yd	$4.50	45 p c	50 p c

In no case shall any of such fabrics pay less duty than 50 per cent.

Handkerchiefs or mufflers composed wholly or in part of silk, whether in the piece or otherwise, finished or unfinished, if not hemmed or hemmed only, shall pay the same rate of duty as is imposed on goods in the piece, of the same description, weight, and condition as provided for in this schedule; but such handkerchiefs or mufflers shall not pay a less rate of duty than 50 per cent. ad valorem. If such handkerchiefs or mufflers are hemstitched or imitation hemstitched, or revered, or have drawn threads, or are embroidered in any manner, whether with an initial letter, monogram, or otherwise, by hand or machinery, or are tamboured, appliqued, or are made or trimmed wholly or in part with lace or with tucking or insertion, they shall pay a duty of 10 per cent. ad valorem in addition to the duty hereinbefore prescribed, and in no case less than 60 per cent. ad valorem.

Articles.	Dingley Law.	Wilson Law.	McKinley Law
Bandings, bindings, beltings, bone casings, braces, cords, cords and tassels, garters, gorings, suspenders, tubings and webbings, composed wholly or in part of silk, whether composed in part of India rubber or otherwise, if not embroidered by hand or machinery	50 p c	45 p c	50 p c
Laces and articles made wholly or in part of lace edgings, insertings, galloons, chiffon or other flouncings, nets or nettings, and veilings, neck ruffings, ruchings, braids, fringes, trimmings, embroideries, and articles embroidered by hand or machinery, tamboured, or appliqued, clothing ready made, and articles of wearing apparel of every description, including knit goods, made up or manufactured, in whole or in part, by the tailor, seamstress, or manufacturer. All the above named articles made of silk or of which silk is the chief component material, of value not specially provided for, and silk goods ornamented with beads or spangles, of whatever material composed. Proviso—	60 p c	50 p c	60 p c
That any wearing apparel or other articles provided for in this paragraph (except gloves) when composed in part of India rubber, shall be subject to a duty of	60 p c	50 p c	8c oz & 60 p c
All manufactures of silk, or of which silk is the component material of chief value, including such as have India rubber as a component material, not specially provided for, and all jacquard figured goods in the piece, made on looms, of which silk is of chief value, dyed in the yarn and containing two or more colors in the filling	50 p c	45 p c	50 p c

Schedule M—Pulp, Papers, and Books.

Articles.	Dingley Law.	Wilson Law.	McKinley Law
Mechanically ground wood pulp, dry weight	1-12c lb	10 p c	$2.50 ton
Chemical wood pulp, unbleached, dry weight	1-6c lb	10 p c	$6 ton
Bleached, dry weight	¼c	10 p c	$7 ton
If export duty is imposed by any country, it shall be added to imports from that country.			
Sheathing paper and roofing felt	10 p c	10 p c	10 p c
Filter masse, wholly or in part wood, wood flour, or other vegetable fiber	1½c & 15 p c	35 p c	.....
Printing paper, unsized, sized, or glued, suitable only for books and newspapers, valued not above 2c per lb	3-10c lb	15 p c	15 or 20 p c
Valued above 2c, not above 2½c	4-10c lb	15 p c	15 or 20 p c
Valued above 2½c, and not above 3c	5-10c lb	15 p c	15 or 20 p c
Valued above 3c, and not above 4c	6-10c lb	15 p c	15 or 20 p c
Valued above 4c, and not above 5c	8-10c lb	15 p c	15 or 20 p c
Valued above 5c per lb	15 p c	15 p c	15 or 20 p c
From countries imposing export duty on pulp wood, for each $1 of export duty per cord so imposed, and proportionately for fractions additional	1-10c lb	.....	.....
Papers commonly known as copying paper, stereotype, bibulous, tissue, pottery paper, and all similar papers, white, colored, or printed, weighing not over 6 lbs to the ream of 480 sheets, on a basis of 20x30 inches in ream or other form	6c lb & 15 p c	35 p c	8c & 15 p c
Weighing over 6 lbs and not over 10 lbs to ream, and letter copying books, whether wholly or partly manufactured	5c & 15 p c	35 p c	8c & 15 p c
Crepe paper and filtering paper	5c & 15 p c	35 p c	8c & 15 p c
Surface coated papers not provided for	2½c lb & 15 p c	30 p c	35 p c
If printed, wholly or partly covered with metal or its solutions, or with gelatin or flock	3c & 20 p c	30 p c	35 p c
Parchment papers	2c & 10 p c	30 p c	35 p c
Plain, basic, photographic papers for albumenizing, sensitizing, or baryta coating	3c & 10 p c	30 p c	35 p c
Albumenized or sensitized, or paper otherwise surface coated for photographic purposes	30 p c	30 p c	35 p c
Lithographic prints from stones, zinc, aluminum, or other material, bound or unbound (except cigar labels and bands, lettered or blank; music and illustrations, when forming a part of a periodical or newspaper and accompanying the same, or if bound in or forming part of printed books), on paper or other material not exceeding 8-1000 of an inch in thickness	20c lb	20c	35 p c
On paper or other material exceeding 8-1000 of an inch, and not exceeding 20-1000 of an inch in thickness, and exceeding 35 square inches, but not exceeding 400 square inches, cutting size and dimensions	8c	8c	35 p c
Exceeding 400 square inches, cutting size and dimensions	35 p c	8c	35 p c
Prints exceeding 8-1000 of an inch, and not exceeding 20-1000 of an inch in thickness and not exceeding 35 square inches, cutting size and dimensions	5c	5c	35 p c
Lithographic prints from stone, zinc, aluminum, or other material on cardboard or other material exceeding 20-1000 of an inch in thickness	6c	6c	35 p c
Lithographic cigar labels and bands, lettered or blank, printed from stone, zinc, aluminum, or other material, if printed in less than eight colors (bronze printing to be counted as two colors), but			

Articles.	Dingley Law.	Wilson Law.	McKinley Law
not including labels printed in whole or in part in bronze or metal leaf	20c	20c	35 p c
If printed in whole in bronze	15c	30c	35 p c
If printed in eight or more colors, but not including printed in whole or part in metal leaf	30c	30c	35 p c
If printed in whole or in part in metal leaf	50c	40c	35 p c
Books for children's use, with illuminated lithographic prints, not exceeding 24 ozs, and periodicals printed in whole or in part by lithographic process or decorated by hand	8c lb	Free	35 p c
Writing, note, letter, hand-made, drawing, ledger, bond, record, tablet, and typewriter paper, weighing not less than 10 lbs and no more than 15 lbs to the ream	2c lb & 10 p c	20 p c	25 p c
Weighing more than 15 lbs to the ream	3½c & 15 p c	20 p c	25 p c
But if any such paper is ruled, bordered, embossed, printed, or decorated in any manner, it shall pay in addition to the foregoing rates	10 p c	20 p c	25 p c
Paper hangings and paper for screens and all other paper not provided for	25 p c	20 p c	25 p c
Jacquard designs of one-line paper, or designs cut on jacquard cards, or parts, finished or unfinished	35 p c	20 p c	25 p c
Books of all kinds, including blank books and pamphlets, and engravings, bound and unbound, photographs, etchings, maps, charts, music in books or sheets, and printed matter, all such not provided for	25 p c	25 p c	25 p c
Photograph, autograph, and scrap albums, wholly or partly manufactured	35 p c	30 p c	35 p c
All fancy boxes of paper, or in which paper is chief value, or if covered with surface coated paper	45 p c	30 p c	35 p c
Playing cards in packs not exceeding 54 cards, and at a like rate for any number in excess	10c pk & 20 p c	10c & 50 p c	50c
Manufactures of paper or in which paper is chief value, not provided for	35 p c	20 p c	25 p c

Schedule N—Sundries.

Articles.	Dingley Law.	Wilson Law.	McKinley Law
Beads of all kinds not threaded or strung	35 p c	20 p c	10 p c
Fabrics, nets, or nettings, laces, galloons, wearing apparel, and articles not provided for, wholly or in part of beads or spangles made of glass or paste, gelatine, metal, or other material, but not composed in part of wool	60 p c	35 p c	.....
Braids, plaits, laces, and willow sheets or squares composed wholly of straw, chip, grass, palm leaf, willow, osier, or rattan, suitable for making or ornamenting hats, bonnets, or hoods not bleached, dyed, or stained	15 p c	Free	Free
If bleached, dyed, or stained	20 p c	Free	Free
Hats, bonnets, and hoods, composed of straw, chip, grass, palm leaf, willow, osier, or rattan, whether wholly or partly manufactured, but not trimmed	35 p c	Free	Free
If trimmed	50 p c	Free	Free
But the terms "grass" and "straw" shall be understood to mean these substances in their natural form and structure, and not the separated fiber thereof.			
Brushes, brooms, and feather dusters, hair pencils, in quills or otherwise	40 p c	35 p c	40 p c
Bristles, sorted, bunched, or prepared	7½c lb	7½c lb	7½c lb
Trousers buckles, wholly or partly of iron or steel, or parts, valued at more than 15c per 100	5c 100 & 15 p c	35 p c	.....
Valued at more than 15c and not more than 50c per 100	10c & 15 p c	35 p c	.....

Articles.	Dingley Law.	Wilson Law.	McKinley Law
Buttons and Button Forms—			
Button forms, lastings, mohair, cloth, silk, or other manufactures of cloth, woven or made in patterns, of such sizes, shape, or form, or cut in such manner as to be fit for buttons exclusively	10 p c	10 p c	10 p c
Buttons, or parts, and molds, finished or unfinished, the line, button measure, being ¼ in., viz.:			
Buttons known as agate metal trousers buttons, except steel and nickel bar, per line, per gross	1-12c & 15 p c	25 p c	25 p c
Of bone and steel trousers button, per line, per gross	¼c & 15 p c	25 p c	25 p c
Pearl, or shell	1½c & 15 p c	1c & 15 p c	2½c & 25 p c
Horn, vegetable ivory, glass, or metal, not provided for	¾c & 15 p c	35 p c	50 p c
Shoe buttons, of paper, pulp, or similar material, not provided for, value not exceeding 3c. gross	1c gross	25 p c	50 p c
Buttons, not provided for, and collar and cuff buttons and studs	50 p c	35 p c	50 p c
Coal, bituminous, and all coals containing less than 92 per cent. fixed carbon, and shale	67c ton	40c	75c
Slack, such as will pass through ½-inch screen	15c	15c	30c
Coke	20 p c	15 p c	20 p c
Cork bark, cut into squares or cubes	8c lb	Free	10c
Manufactured cork, over ¾ in. in diameter at larger end	15c	10c	15c
Measuring ¾ in. and less in diameter	25c	10c	15c
Artificial or cork substitutes, from cork waste, not provided for	8c	10c	15c
Dice, draughts, chessmen, chess balls, and billiard, pool, and bagatelle balls, of ivory, bone, or other materials	50 p c	50 p c	50 p c
Dolls, doll heads, toy marbles, of whatever materials composed, and all other toys not composed of rubber, china, porcelain, parian, bisque, earthen or stone ware, and not specially provided for	35 p c	25 p c	35 p c
Emery grains and emery manufactures, ground, pulverized, or refined	1c lb	8-10c	1c
Emery wheels and emery files, and manufactures in which emery is chief value	25 p c	8-10c	1c
Explosive Substances—			
Firecrackers of all kinds, the weight to include all wrapping and packing materials	8c lb	50 p c	8c
Fulminates, fulminating powders, and like articles, not provided for	30 p c	30 p c	30 p c
Gunpowder and all explosive substances used for mining, blasting, artillery, or sporting purposes, when valued at 20c or less per lb	4c lb	5c	8c
Valued above 20c	6c	8c	8c
Matches, friction or lucifer, of all descriptions, per gross of 144 boxes, containing not more than 100 matches per box, per gross	8c	20 p c	10c
When imported otherwise than in boxes containing not more than 100 matches each, per 1,000	1c	20 p c	1c
Percussion caps	30 p c	30 p c	40 p c
Cartridges	35 p c	30 p c	40 p c
Blasting caps, per 1,000	$2.36	$2.07	40 p c
Feathers and downs of all kinds, including bird skins or parts thereof, with the feathers on, crude or not dressed, colored, or otherwise advanced or manufactured in any manner not provided for	15 p c	35 p c	10 p c
When dressed, colored, or otherwise advanced or manufactured in any manner, including quilts of down and other manufactures of down, and also dressed and finished birds, suitable for millinery ornaments, and artificial or ornamental feathers, fruits, grains, leaves, flowers, and stems or parts thereof, of whatever material composed, not provided for	50 p c	35 p c	50 p c

Articles.	Dingley Law.	Wilson Law.	McKinley Law
Furs, dressed on the skins, but not made up into articles, and furs not on the skin, prepared for hatters' use, including fur skins carroted	20 p c	20 p c	20 p c
Fans of all kinds, except common palm leaf fans	50 p c	40 p c	Various
Gun wads of all descriptions	20 p c	10 p c	35 p c
Hair, human, if clean or drawn, but not manufactured	20 p c	20 p c	20 p c
Hair, curled, suitable for beds or mattresses	10 p c	10 p c	15 p c
Hair cloth, or crinoline cloth	10c s yd	6c	6c
Hair cloth, known as "hair seating" and hair press cloth	20c s yd	20c	30c
Hats, bonnets or hoods for men's, women's, boys', or children's wear, trimmed or untrimmed, including bodies, hoods, plateaux forms, or shapes for hats or bonnets, composed wholly or in chief value of fur of the rabbit, beaver, or other animals, valued at not more than $5 per doz	$2 doz & 20 p c	40 p c	55 p c
Valued at more than $5 per doz and not more than $10 per doz	$3 & 20 p c	40 p c	55 p c
Valued at more than $10 and not more than $20 per doz	$5 & 20 p c	40 p c	55 p c
Valued at more than $20 per doz	$7 & 20 p c	40 p c	55 p c
Indurated fiber ware and manufactures of wood, or other pulp, and not provided for	35 p c	20 p c	35 p c
Jewelry and Precious Stones—			
Articles known as jewelry, and parts, finished or unfinished, not provided for, including precious stones set, pearls set, and cameos in frames	60 p c	35 p c	60 p c
Diamonds and other precious stones advanced in condition of value from a natural state by cleaving, splitting, cutting, or other process and not set	10 p c	25 p c	10 p c
Imitations of diamonds and other precious stones, composed of glass or paste, not exceeding an inch in dimensions, not engraved, painted, or otherwise ornamented or decorated, and not mounted or set	20 p c	10 p c	10 p c
Pearls in their natural state, not strung or set	10 p c	10 p c	10 p c
Leather and Manufactures of—			
Hides of cattle, raw or uncured, dry, salted or pickled	15 p c	Free	Free
Band or belting leather, sole leather, dressed upper and all other leather, calf skins, tanned or dressed, kangaroo, sheep, and goat skins (including lamb and kid skins), dressed and finished, chamois and other skins, and bookbinders' calfskin, all not provided for	20 p c	20 p c	20 p c
Skins for morocco, tanned, but unfinished	10 p c	10 p c	10 p c
Patent, japanned, varnished, or enameled leather, weighing not over 10 lbs per doz. hides	30c lb & 20 p c	20 p c	30 p c
Weighing over 10, and not over 25 lbs per doz	30c & 10 p c	20 p c	30 p c
Weighing over 25 lbs per doz	20c & 10 p c	20 p c	30 p c
Pianoforte leather and action leather	35 p c	20 p c	35 p c
Leather shoe laces, finished or unfinished	50c grs prs & 20 p c	30 p c	35 p c
Boots and shoes made of leather	25 p c	20 p c	25 p c
Leather cut in forms for manufactured articles classed as manufactures of leather	.....	.....	.....
Gloves, wholly or in part of leather, the length being measure when stretched to full extent	.....	.....	.....
Women's or children's "glace" finish, schmaschen (of sheep origin), not over 14 inches in length, per doz. pairs	$1.75	$1	$1.75
Over 14 inches and not over 17 inches	$2.25	$1.50	$2.25
Over 17 inches	$2.75	$2	$3.25

ARTICLES.	Dingley Law.	Wilson Law.	McKinley Law
Men's glace finish, schmaschen (sheep)	$3	$3	50 p c
Women's or children's glace finish, lamb or sheep, not over 14 inches in length	$2.50	$1.75	$3.25
Over 14 and not over 17 inches	$5.50	$2.75	$3.25
Over 17 inches	$4.50	$3.75	50 p c
Men's glace finish, lamb or sheep	$4	$4	$1 & 50 p c
Women's or children's glace finish, goat, kid, or other leather than of sheep origin, not over 14 inches in length	$3	$2.25	50 p c
Over 14 and not over 17 inches in length	$3.75	$3	50 p c
Over 17 inches	$4.75	$4	50 p c
Men's glace finished, kid, goat, or other leather than of sheep origin	$4	$4	$1 & 50 p c
Women's or children's, of sheep origin, with exterior grain surface removed, by whatever name known, not over 17 inches in length	$2.50	$1.75	50 p c
Over 17 inches	$3.50	$2.75	50 p c
Men's, of sheep origin, with exterior surface removed	$4	$4	$1 & 50 p c
Women's or children's kid, goat, or other leather than of sheep origin, with exterior grain surface removed, not over 14 inches in length	$3	$2.25	50 p c
Over 14 and not over 17 inches	$3.75	$3	50 p c
Over 17 inches	$4.75	$4	50 p c
Men's goat, kid, or other leather than of sheep origin, with exterior surface removed	$4	$4	$1 & 50 p c
In addition to foregoing rates on leather gloves, when lined, per doz. pairs	$1	$1	$1
On all pique or prix seam gloves	40c	.....	50c
Gloves stitched, with more than 3 single strands	40c	.....	50c
Glove tranks, with or without the usual accompanying pieces, shall pay 75 per cent. of the duty provided for the gloves in the fabrication of which they are suitable.			
Harness, saddles, and saddlery, or parts of either in sets or in parts, finished or unfinished.	45 p c	20 p c	20 p c
Manufactures of amber, asbestos, bladders, cork, catgut or whipgut or wormgut, spar, wax, or of which these substances, or either of them, is a component material of chief value, not provided for	25 p c	25 p c	25 p c
Manufactures of bone, chip, grass, horn, India rubber, palm leaf, straw, weeds, or whalebone, not provided for.	30 p c	25 p c	30 p c
Manufactures of leather, finished or unfinished; manufactures of fur, gelatine, gutta percha, human hair, ivory, vegetable ivory, mother-of-pearl and shell, papier mache, and vulcanized India rubber, known as hard rubber, not specially provided for, and shells, engraved, cut, ornamented, or otherwise manufactured	35 p c	30 p c	35 p c
Masks, composed of paper, or pulp	35 p c	25 p c	35 p c
Matting made of cocoa fiber or rattan, per square yard	6c	20 p c	12c
Mats made of cocoa fiber or rattan, per square foot	4c	20 p c	8c
Musical instruments or parts thereof, piano-forte actions and parts thereof, strings for musical instruments, not otherwise enumerated, cases for musical instruments, pitch pipes, tuning forks, tuning hammers, and metronomes, strings for musical instruments, wholly or partly of steel or other metal	45 p c	25 p c	35 or 45 p c
Paintings in oil, water, pastel, pen drawings, statuary, not provided for	20 p c	Free	15 p c
Statuary includes such as is cut or otherwise wrought by hand from a solid mass or from metal, and is the professional production of a statuary or sculptor only.			
Peat moss	$1 ton	Free	Free
Pencils, paper or wood, filled with lead or other material, and pencils of lead	45c grs & 25 p c	50 p c	50c & 30 p c
Slate pencils, covered with wood	35 p c	30 p c	40c grs & 10 p c
Other slate pencils	3c 100	30 p c	4c grs & 10 p c
Pencil leads, not in wood	10 p c	10 p c	10 p c
Photographic dry plates and films	25 p c	25 p c	60 p c
Common tobacco pipes and pipe bowls of clay, valued at not more than 40c per gross.	15c grs	10 p c	15c
Other tobacco pipes and pipe bowls of clay	50c & 25 p c	10 p c	15c
Other pipes and pipe bowls of whatever composed, and all smokers' articles not provided for, including cigarette books and covers, pouches for tobacco, and cigarette paper in all forms	60 p c	50 p c	70 p c
Plows, tooth and disk harrows, harvesters, reapers, agricultural drills and planters, mowers, horse rakes, cultivators, thrashing machines, and cotton gins	20 p c	Various	Various
Plush, black, known as hatters', of silk, or silk and cotton, as is used for men's hats	10 p c	Free	10 p c
Umbrellas, parasols, and sun shades, covered with material other than paper	50 p c	45 p c	55 p c
Sticks for umbrellas, etc., and walking canes, finished or unfinished	40 p c	30 p c	35 p c
Waste not provided for	10 p c	10 p c	10 p c

FREE LIST.

Acids—Arsenic or arsenious, benzoic, carbolic, fluoric, hydrochloric, or muriatic, nitric, oxalic, phosphoric, phthalic, picric, or nitropicric; prussic, silicic, and valerianic.

Aconite; acorns raw, dried, or undried, but unground; agates, manufactured; albumen not specially provided for; alizaren, natural or artificial, and dyes derived from alizaren or from anthracen; amber and amberoid, unmanufactured or crude gum; ambergris, and analine salts.

Any animal imported specially for breeding purposes shall be admitted free, provided that no such animal shall be admitted free unless pure bred of a recognized breed and duly registered in the book of record established for that breed. Cattle, horses, sheep, and other domestic animals, strayed, or driven into a foreign country for temporary pasturage, may, with their increase, be returned within six months, free.

Animals brought into the United States temporarily for a period not exceeding six months for the purpose of exhibition or competition for prizes offered by any agricultural or racing association; teams of animals, including their harness and tackle, and the wagons or other vehicles, actually owned by persons emigrating from foreign countries to the United States with their families, and in actual use for the purpose of such emigration, and wild animals intended for exhibition in zoological collections for scientific and educational purposes, and not for sale or profit.

Annotto, roucou, rocoa, or orleans, and all extracts of; antimony ore, crude sulphite of; apatite; arrow root in its natural state and not manufactured; arsenic and sulphide of, or orpiment; arseniate of aniline; art educational stops, composed of glass and metal and valued at not more than 6 cents per gross.

Articles in a crude state used in dyeing or tanning, not specially provided for in this act.

Articles the growth, produce and manufacture of the United States, when returned after having been exported, without having been advanced in value or improved in condition by any process of manufacture or other means; casks, barrels, carboys, bags and other vessels of American manufacture exported filled with American products, or exported empty and returned filled with foreign products, including shooks and staves when returned as barrels or boxes; also quicksilver flasks or bottles, of either domestic or foreign manufacture, which shall have been actually exported from the United States, but the exemption of bags from duty shall apply only to such domestic bags as may be imported by the exporter thereof, and if any such articles are subject to internal tax at the time of exportation, such tax shall be proved to have been paid before exportation and not refunded. And, provided, That when manufactured tobacco which has been exported without payment of internal revenue tax shall be reimported, it shall be retained in the custody of the collector of customs until internal revenue stamps in payment of the legal duties shall be placed thereon. Asbestos unmanufactured; ashes, wood and lye of the beet root ashes; asafetida.

Balm of Gilead; barks, cinchona or other from which quinine may be extracted; baryta, carbonate of, or witherite, and beeswax.

All binding twine manufactured from New Zealand hemp, istle or Tampico fibre, sisal grass, or sunn, or a mixture of any two or more of them, of single ply and measuring not exceeding 600 feet to the pound. Provided, that articles mentioned in this paragraph, if imported from a country which lays an import duty on like articles imported from the United States, shall be subject to a duty of one-half of one cent per pound.

Bells, broken, and bell metal, broken and fit only to be manufactured; birds, stuffed, not suitable for millinery ornaments; birds and land and water fowls; bismuth; bladders and all integuments and intestines of animals and fish sounds, cured or salted for preservation only, and unmanufactured, not specially provided for; blood, dried not provided for; bolting cloth composed of silk, imported expressly for milling purposes, and so permanently marked as not to be suitable for any other use; bones, crude, or not burned, calcined, ground, steamed, or otherwise manufactured, and bone dust or animal carbon, and bone ash, fit only for fertilizing purposes; books, engravings, photographs, etchings, bound or unbound, maps and charts imported for the use of the United States or the Library of Congress; books, maps, music, engravings, photographs, etchings, bound or unbound, and charts, which shall have been printed more than twenty years at the date of importation, and all hydrographic charts, and publications issued for their subscribers or exchanges by scientific or literary associations or academies, or publications of individuals for gratuitous private circulation, and public documents issued by foreign governments; books and pamphlets printed exclusively in languages other than English; also books and music in raised print, used exclusively by the blind; books, maps, music, photographs, etchings, lithographic prints, and charts specially imported, not more than two copies in any one invoice, in good faith, for the use or by order of any society or institution incorporated or established solely for religious, philosophical, educational, scientific, or literary purposes, or for the encouragement of the fine arts, or for the use or by order of any college, academy, school or seminary of learning in the United States, or any State, or public library, and not for sale, subject to such regulations as the Secretary of the Treasury shall prescribe; books, libraries, usual and reasonable furniture, and similar household effects of persons or families from foreign countries, if actually used abroad by them for not less than one year, and not intended for any other person or persons, or for sale.

Brass, old brass, clippings from brass or Dutch metal, all the foregoing, fit only for manufacture; Brazil paste; Brazilian pebble, unwrought or unmanufactured; breccia, in block or slabs; bristles, crude, not sorted, bunched or prepared; broom corn; bullion, gold or silver; Burgundy pitch; cadmium; calamine; camphor, crude; castor, or castoreum; cat gut, whip gut, or worm gut, unmanufactured; cerium; chalk, crude, not ground, precipitated or otherwise manufactured; chromate of iron or chromic ore; civet, crude; common blue clay in casks, suitable for the manufacture of crucibles.

Coal, anthracite, not provided for, and coal stores of American vessels, but none shall be unloaded; coal tar, crude; pitch of coal tar and products of coal tar known as dead or creosote oil, benzoi, tolyol, naphthalin, xyol, phenol, cresol, toluidine, xylidin, cumidin, binitrotoluol, binitrobenzol, benzidin, tolidin, dionisidin, naphtol, naphtylamin, diphenylamin, benzaldehyde, benzyl, chloride, resorcin, nitrobenzol, and nitrotoluol; all the foregoing not medicinal and not colors or dyes.

Cobalt and cobalt ore; cocculus indicus; cochineal; cocoa, or cacao, crude and fibre, leaves and shells of; coffee, coins, gold, silver, and copper; coir and coir yarn; copper in plates, bars, ingots, or pigs, and other forms, not manufactured, or specially provided for; old copper, fit only for manufacture, clipping from new copper, and all composition metal of which copper is a component material of chief value not specially provided for in this act; copper, regulus of, and black or coarse copper, and copper cement; coral, marine, uncut, and unmanufactured; cork wood or cork bark, unmanufactured; cotton and cotton waste or flocks.

Cryolite or kryolith; cudbear; curling stones, or quoits, and curling stone handles; curry, and curry powder; cutch; cuttlefish bone.

Dandelion roots, raw, dried, or undried, but unground.

Diamonds and other precious stones, rough or uncut, and not advanced in condition or value from their natural state by cleaving, splitting, cutting, or other process, including miners', glaziers' and engravers' diamonds, not set, and diamond dust or bort; divi-divi; dragon's blood.

Drugs, such as barks, beans, berries, balsams, buds, bulbs, and bulbous roots, excrescences, fruits, flowers, dried fibers, and dried insects, grains, gums, and gum resin, herbs, leaves, lichens, mosses, nuts, nutgalls, roots and stems, spices, vegetables, seeds aromatic, and seeds of morbid growth, weeds, and woods used expressly for dyeing; any of the foregoing which are not edible and are in a crude state, and not advanced in value or condition by refining or grinding or by other process, and not specially provided for.

Eggs of birds, fish and insects, not including eggs of game birds or eggs of birds not used for food, the importation of which is prohibited, except specimens for scientific collections; nor fish roe preserved for food purposes, emery ore, ergot; fans, common palm leaf, plain and not ornamented, and palm leaf in its natural state, not colored, or otherwise advanced in manufacture; felt, adhesive, for sheathing vessels, and fibrin in all forms.

Fish, fresh, frozen or packed in ice, caught in the Great Lakes or other fresh waters by citizens of the United States, fish skins, flint, flints and flint stones, unground; fossils; fruits, or berries, green, ripe, or dried, and fruits in brine, not provided for; fruit plants, tropical and semi-tropical, for the purpose of propagation or cultivation; furs, undressed; fur skins of all kinds not dressed in any manner, not provided for; gambier.

Glass enamel, white, for watch and clock dials; glass plates or disks, rough cut or unwrought, for use in the manufacture of optical instruments, spectacles and eyeglasses, and suitable only for such use; provided, however, that such disks, exceeding eight inches in diameter may be polished sufficiently to enable the character of the glass to be determined.

Grasses and fibres—Istle or Tampico fibre, jute, jute butts, manila, sisal grass, sunn, and all other textile grasses or fibrous vegetable substances, not manufactured or dressed in any manner, and not specially provided for in this act.

Goldbeaters' molds and goldbeaters' skins—Grease and oils (excepting fish oils), such as are commonly used in soap making or in wire drawing, or for stuffing or dressing leather, and which are fit only for such uses, and not specially provided for in this act.

Guano, manures, and all substances used only for manure; gutta percha, crude.

Hair of horse, cattle, and other animals, cleaned or uncleaned, drawn or undrawn, but manufactured, not specially provided for in this act; and human hair, raw, uncleaned, and not drawn; hide cuttings, raw, with or without hair; and all other glue stock; hide rope; hones, and whetstones; hoofs, unmanufactured; hop roots for cultivation; horns and parts of, unmanufactured, including horn strips and tips.

Ice, India rubber, crude, and milk of, and old scrap or refuse India rubber which has been worn out by use and fit only for remanufacture; indigo, iodine, crude; ipecac, iridium, ivory tusks in their natural state or cut vertically across the grain only with the bark left intact, and vegetable ivory in the natural state.

Jalap, jet, unmanufactured; Joss stick or Joss light; junk, old.

Kelp, kieserite, kyanite, or cyanite, and kainite.

Lac dye, crude, seed, button, stick and shell; lac spirits; lactarene; lava, unmanufactured; leeches, lemon juice, lime juice, and sour orange juice; licorice root, unground; lifeboats and lifesaving apparatus specially imported by societies incorporated or established to encourage the saving of human life; lime, citrate of; lithographic stones, not engraved; litmus, prepared or not prepared; lodestones.

Madder and munjeet, or Indian madder, ground or prepared, and all extracts of it; magnesite, crude or calcined, not purified; magnesium, not made up in articles; manganese, oxide and ore of; manna, manuscripts.

Marrow, crude; marshmallow or althea root, leaves or flowers, natural or unmanufactured; medals of gold, silver, or copper, and other metallic articles actually bestowed as trophies or prizes, and received and accepted as honorary distinctions; meerschaum, crude or unmanufactured.

Minerals, crude, or not advanced in value or condition by refining or grinding, or by other process of manufacture, not specially provided for in this act; mineral salts obtained by evaporation from mineral waters, when accompanied by a duly authenticated certificate and satisfactory proof, showing that they are in no way artificially prepared, and are only the product of a designated mineral spring.

Models of inventions and of other improvements in the arts, including patterns for machinery, but no article shall be deemed a model or pattern which can be fitted for use otherwise.

Moss, seaweeds, and vegetable substances, crude or unmanufactured, not otherwise specially provided for in this act; musk, crude, in natural pods; myrobolans; needles, hand sewing, and darning.

Newspapers and periodicals; but the term "periodicals" as herein used shall be understood to embrace only unbound or paper covered publications issued within six months of the time of entry, containing current literature of the day, and issued regularly at stated periods, as weekly, monthly, or quarterly.

Brazil nuts, cream nuts, palm nuts, and palm nut kernels; cocoanuts in the shell and broken cocoanut meat or copra, not shredded, desiccated, or prepared in any manner; nux vomica; oakum; oil cake.

Oils: Almond, amber, crude and rectified ambergris, anise or anise seed, aniline, aspic or spike lavender, bergamot, cajeput, caraway, cassia, cinnamon, cedrat, chamomile, citronella, or lemon grass, civet, cocoanut, fennel, ichthyol, jasmine, or jessamine, juglandium, juniper, lavender, lemon, limes, mace, neroli, or orange flower, enfleurage grease, nut oil, or oil of nuts not otherwise specially provided for in this act, orange oil, olive oil for manufacturing or mechanical purposes fit only for such use and valued at not more than 60 cents per gallon, ottar of roses, palm, rosemary or anthoss, sesame or sesamum seed or bean, thyme, origanum red or white, valerian; and also spermaceti, whale, and other fish oils of American fisheries, and all fish and other products of such fisheries; petroleum, crude or refined: Provided, that if there be imported into the United States, crude petroleum, or the products of crude petroleum produced in any country which imposes a duty on petroleum or its products exported from the United States, there shall in such cases be levied, paid, and collected a duty upon said crude petroleum or its products so imported equal to the duty imposed by such country.

Orange and lemon peel, not preserved, candied, or dried; orchid or orchil liquid; ores of gold, silver, copper, or nickel, and nickel matte; sweepings of gold and silver; osmium.

Palladium, paper stock, crude, of every description, including all grasses, fibers, rags (other than wool), waste, including jute waste, shavings, clippings, old paper, rope ends, waste rope and waste bagging, including old gunny cloth and old gunny bags, fit only to be converted into paper.

Paraffin; parchment and vellum; pearl, mother of, and shells, not sawed, cut, polished, or otherwise manufactured, or advanced in value from the natural state.

Personal effects, not merchandise, of citizens of the United States, dying in foreign countries; pewter and britannia metal, old, and fit only to be remanufactured.

Philosophical and scientific apparatus, utensils, instruments and preparations, including bottles and boxes containing the same, specially imported in good faith for the use and by the order of any society or institution incorporated or established solely for religious, philosophical, educational, scientific, or literary purposes, or for the encouragement of the fine arts, or for the use or by the order of any college, academy, school, or seminary of learning in the United States, or any State or public library, and not for sale.

Phosphates, crude; plants, trees, shrubs, roots, seed canes, and seeds imported by the Department of Agriculture or the United States Botanic Garden.

Platina, in ingots, bars, sheets, and wire; platinum, unmanufactured, and vases, retorts, and other apparatus, vessels, and parts thereof composed of platinum, for chemical uses; plumbago; potash, crude or "black salts"; carbonate of potash, crude or refined; hydrate of, or caustic potash, not including refined in sticks or rolls; nitrate of potash or saltpeter, crude; sulphate of potash, crude or refined, and muriate of potash.

Professional books, implements, instruments, and tools of trade, occupation, or employment, in the actual possession at the time of persons emigrating to the United States; but this exemption shall not be construed to include machinery or other articles imported for use in any manufacturing establishment, or for any other person or persons, or for sale, nor shall it be construed to include theatrical scenery, properties, and apparel; but such articles brought by proprietors or managers of theatrical exhibitions arriving from abroad, for temporary use by them in such exhibitions, and not for any other person, and not for sale, and which have been used by them abroad, shall be admitted free of duty.

Pulu; quinia, sulphate of, and all alkaloids or salts of cinchona bark; rags not otherwise provided for.

Regalia and gems, statuary and specimens or casts of sculpture, imported in good faith for use of scientific and literary societies and educational organizations; and by order of any society incorporated and established solely for religious, philosophical, educational, scientific, or literary purposes, or for the encouragement of the fine arts, or for the use and by order of any college, academy, school, or seminary of learning in the United States, or any State or public library, and not for sale; but the term "regalia" as herein used shall be held to embrace only such insignia of rank or office or emblems as may be worn upon the person or borne in the hand during public exercises of the society or institution, and shall not include articles of furniture or fixtures, or of regular wearing apparel, nor personal property of individuals.

Rennets, raw or prepared; saffron and safflower, and extracts of, and saffron cake; sago, crude; salacin; salep; sausages, bologna; seeds—anise, caraway, cardamon, cauliflower, coriander, cotton, cummin, fennel, fenugreek, hemp, horehound, mangel wurzel, mustard, rape, St. John's bread or bean, sugar beet, sorghum or sugar cane for seed; bulbs and bulbous roots, not edible and not otherwise provided for; all flower and grass seeds; all the foregoing not specially provided for in this act.

Sheep dip, not including compounds or preparations that can be used for other purposes; shotgun barrels in single tubes, forged, rough bored; shrimps and other shell fish; silk, raw, or as reeled from the cocoon, but not doubled, twisted, or advanced in manufacture in any way; silk cocoons and silk waste; silkworms' eggs; skeletons and other preparations of anatomy; skins of all kinds, raw (except sheepskins with the wool on), and hides not specially provided for in this act; soda, nitrate of, or cubic nitrate.

Specimens of natural history, botany, and mineralogy, when imported for scientific public collections, and not for sale.

Spices—Cassia, cassia vera, and cassia buds; cinnamon and chips of; cloves and clove stems; mace; nutmegs; pepper, black or white, and pimento; all the foregoing when unground; ginger root, unground and not preserved or candied.

Spunk; spurs and stilts used in the manufacture of earthenware, porcelain and stoneware; stamps; foreign postage or revenue stamps, canceled or uncanceled; stone and sand; burrstone in blocks, rough or unmanufactured; cliff stone, unmanufactured; rotten stone, tripoli, and sand, crude or manufactured, not otherwise provided for in this act; storax, or styrax; strontia, oxide of and protoxide of strontian, and strontianite, or mineral carbonate of strontia; sulphur, lac or precipitated, and sulphur or brimstone crude in bulk; sulphur ore as pyrites, or sulphuret of iron in its natural state, containing in excess of 25 per centum of sulphur, and sulphur not otherwise provided for.

Sulphuric acid which at the temperature of 60 degrees Fahrenheit does not exceed the specific gravity of one and three hundred and eighty thousandths, for use in manufacturing superphosphate of lime or artificial manures of any kind, or for any agricultural purposes; provided that upon all sulphuric acid imported from any country, whether independent or a dependency, which imposes a duty upon sulphuric acid imported into such country from the United States there shall be levied and collected a duty of one-fourth of one cent per pound.

Tamarinds, tapioca, cassava, or cassady; tar and pitch of wood; tea and tea plants; teeth natural or unmanufactured; terra alba not made from gypsum or plaster rock; terra japonica; tin ore, cassiterite or black oxide of tin, and tin in bars, blocks, pigs, or grain or granulated; tobacco stems; tonquin, tonqua, or tonka beans; turmeric; turpentine, Venice; turpentine, spirits of; turtles; types, old, and fit only to be remanufactured; uranium, oxide and salts of; vaccine virus; valonia; verdigris, or subacetate of copper; wax, vegetable or mineral; wafers, unleavened or unedible.

Wearing apparel, articles of personal adornment, toilet articles, and similar personal effects of persons arriving in the United States; but this exemption shall only include such articles as actually accompany and are in the use of and as are necessary and appropriate for the wear and use of such persons for the immediate purposes of the journey and present comfort and convenience, and shall not be held to apply to merchandise or articles intended for other persons or for sale: Provided, that in case of residents of the United States returning from abroad all wearing apparel and other personal effects taken by them out of the United States to foreign countries shall be admitted free of duty, without regard to their value, upon their identity being established, under appropriate rules and regulations to be prescribed by the Secretary of the Treasury, but no more than $100 in value of articles purchased abroad by such residents of the United States shall be admitted free of duty upon their return.

Whalebone, unmanufactured.

Wood—Logs and round unmanufactured timber, including pulp wood, firewood, handle bolts, shingle bolts, gun blocks for gun stocks, rough hewn or sawed, or planed on one side, hop poles, ship timber and ship planking; all the foregoing not specially provided for in this act.

Woods—Cedar, lignum vitae, lancewood, ebony, box, granadilla, mahogany, rosewood, satinwood, and all forms of cabinet woods, in the log, rough, or hewn only; brier root or brier wood

and similar wood unmanufactured, or not further advanced than cut into blocks suitable for the articles into which they are intended to be converted; bamboo, rattan, reeds unmanufactured, India malacca joints, and sticks of partridge, hair wood, pimento, orange, myrtle, and other woods not specially provided for in this act, in the rough, or not further advanced that are cut into lengths suitable for sticks for umbrellas, parasols, sunshades, whips, fishing rods, or walking sticks.

Works of art, drawings, engravings, photographic pictures and philosophical and scientific apparatus brought by professional artists, lecturers, or scientists arriving from abroad for use of them temporarily for exhibition and in illustration, promotion, and encouragement of art, science, or industry in the United States, and not for sale, shall be admitted free of duty.

Works of art, collections in illustration of the progress of the arts, sciences, or manufactures, photographs, works in terra cotta, parian, pottery, or porcelain, antiquities, and artistic copies thereof in metal or other material, imported in good faith for exhibition at a fixed place by any State or by any society or institution established for the encouragement of the arts, sciences, or education, or for a municipal corporation and all like articles imported in good faith by any society or association, or for a municipal corporation, for the purpose of erecting a public monument, and not intended for sale nor for any other purpose than herein expressed.

Works of art, the production of American artists residing temporarily abroad, or other works of art, including pictoral paintings on glass, imported expressly for presentation to a national institution, or to any State or municipal corporation, or incorporated religious society, college, or other public institution, except stained or painted window glass or stained or painted glass windows.

Yams: zaffer.

The administrative features of the bill remain substantially the same as in the Wilson law.

Reciprocity Provisions of the Bill.

These are the reciprocity provisions of the tariff bill, as reported by the conferees, and as they will be in the new law:

That for the purpose of equalizing the trade of the United States with foreign countries and their colonies, producing and exporting to this country the following articles: Argols, or crude tartar, or wine lees, crude; brandies or other spirits manufactured or distilled from grain or other materials; champagne and all other sparkling wines, still wines, and vermouth; paintings and statuary, or any of them, the President be, and he is hereby, authorized, as soon as may be after the passage of this act, and from time to time thereafter, to enter into negotiations with the governments of those countries exporting to the United States the above mentioned articles, or any of them, with a view to the arrangement of commercial agreements in which reciprocal and equivalent concessions may be secured in favor of the products and manufactures of the United States; and whenever the government of any country or colony producing and exporting to the United States the above mentioned articles, or any of them, shall enter into a commercial agreement with the United States, or make concessions in favor of the products or manufactures thereof, which in the judgment of the President, shall be reciprocal and equivalent, he shall be, and he is hereby, authorized and empowered to suspend during the time of such agreement or concession, by proclamation to that effect, the imposition and collection of the duties mentioned in this act on such article or articles so exported to the United States from such country or colony, and thereupon and thereafter the duties levied, collected, and paid upon such article or articles shall be as follows—Namely:

Argols, or crude tartar, or wine lees, crude, 5 per centum ad valorem.

Brandies, or other spirits, manufactured or distilled from grain or other materials, $1.75 per proof gallon.

Champagne and all other sparkling wines, in bottles containing not more than one quart and more than one pint, $6 per dozen; containing not more than one pint each and more than one-half pint, $3 per dozen; containing one-half pint each or less, $1.50 per dozen; in bottles or other vessels, containing more than one quart each, in addition to $6 per dozen bottles, on the quantities in excess of one quart at the rate of $1.90 per gallon.

Still wines and vermouth in casks, 35 cents per gallon; in bottles or in jugs, per case of one dozen bottles or jugs, containing each not more than one quart and more than one pint, or twenty-four bottles or jugs, containing each not more than one pint, $1.25 per case; and any excess beyond these quantities found in such bottles or jugs shall be subject to a duty of 4 cents per pint or fractional part thereof, but no separate or additional duty shall be assessed upon the bottles or jugs.

Paintings in oil or water colors, pastels, pen and ink drawings and statuary, 15 per centum ad valorem.

The President shall have power, and it shall be his duty, whenever he shall be satisfied that any such agreement in this section mentioned is not being fully executed by the government with which it shall have been made, to revoke such suspension and notify such government thereof.

And it is further provided that, with a view to secure reciprocal trade with countries producing the following articles, whenever and so often as the President shall be satisfied that the government of any country or colony of such government producing and exporting directly or indirectly to the United States coffee, tea, and tonquin, tonqua or tonka beans and vanilla beans, or any of such articles, imposes duties or other exactions upon the agricultural, manufactured, or other products of the United States, which in view of the introduction of such coffee, tea, and tonquin, tonqua, or tonka beans and vanilla beans, into the United States, as in this act hereinbefore provided for, he may deem to be reciprocally unequal and unreasonable, he shall have the power, and it shall be his duty, to suspend, by proclamation to that effect, the provisions of this act relating to the free introduction of such coffee, tea, and tonquin, tonqua, or tonka beans and vanilla beans of the products of such country or colony, for such time as he shall deem just; and in such case and during such suspension, duties shall be levied, collected and paid upon coffee, tea, and tonquin, tonqua, or tonka beans and vanilla beans, the products or exports, direct or indirect, from such designated country as follows:

On coffee, 3 cents per pound.

On tea, 10 cents per pound.

On tonquin, tonqua, or tonka beans, 50 cents per pound; vanilla beans, $2 per pound; vanilla beans, commercially known as cuts, $1 per lb.

That whenever the President of the United States, by and with the advice and consent of the Senate, with a view to secure reciprocal trade with foreign countries, shall, within the period of two years from and after the passage of this act, enter into commercial treaty or treaties with any country or countries concerning the admission into any such country or countries of goods, wares, and merchandise of the United States, and their use and disposition therein deemed for the interest of the United States, and in such treaty or treaties, in consideration of the advantages accruing to the United States therefrom, shall provide for the reduction during the specified period, not exceeding five years, of the duties imposed by this act, to the extent of not more than 20 per centum thereof, upon such goods, wares, or merchandise as may be designated therein of the country or countries with which such treaty or treaties shall be made as in this section provided for; or shall provide for the transfer during such period from the dutiable list of this act to the free list thereof, such goods, wares, and merchandise being the natural products of such foreign country or countries, and not of the United States; or shall provide for the retention on the free list of this act during a specified period, not exceeding five years, of such goods, wares, and merchandise now included in said free list as may be designated therein; and when any such treaty shall have been duly ratified by the Senate and approved by Congress, and public proclamation made accordingly, then and thereafter the duties which shall be collected by the United States upon any of the designated goods, wares, and merchandise from the foreign country with which such treaty has been made shall, during the period provided for, be the duties specified and provided for in such treaty, and none other.

IMMIGRATION INTO THE UNITED STATES—1820-1896.

Year.	Total Alien Passengers.	Year.	Total Alien Passengers.	Year.	Total Immigrants.	Year.	Total Immigrants.
1820	8,385	1840	84,066	1860	150,237	1879	177,826
1821	9,127	1841	80,289	1861	89,724	1880	457,257
1822	6,911	1842	104,565	1862	89,207	1881	669,431
1823	6,354	1843	52,496	1863	174,524	1882	788,992
1824	7,912	1844	78,615	1864	193,195	1883	603,322
1825	10,199	1845	114,371	1865	247,453	1884	518,592
1826	10,837	1846	154,416	1866	163,594	1885	395,346
1827	18,875	1847	234,968	Fiscal year ending June 30.		1886	334,203
1828	27,382	1848	226,527	1867	298,967	1887	490,109
1829	22,520	1849	297,024	1868	282,189	1888	546,889
1830	23,322	1850	369,986	1869	352,569	1889	444,427
1831	22,633	1851	379,466	1870	387,203	1890	455,302
1832	60,482	1852	371,603	1871	321,350	1891	560,319
1833	58,640	1853	368,645	1872	404,806	1892	623,084
1834	65,365	1854	427,833	1873	459,803	1893	502,917
1835	45,374	1855	200,877	1874	313,339	1894	314,467
1836	76,242	1856	195,857	1875	227,498	1895	279,948
1837	79,340	1857	246,945	1876	169,986	1896	343,267
1838	38,914	1858	119,501	1877	141,857		
1839	68,069	1859	118,616	1878	138,469	Total	17,544,692
						1789 to 1820, estimated	250,000

SPELLING REFORM.

The American Philological Association has recommended the following "Rules for New Spellings," and a resolution has been introduced in Congress instructing the Public Printer to conform to them in all printing for the Government:

1. Drop UE at the end of words like dialogue, catalogue, etc., where the preceding vowel is short. Thus spell demagog, epilog, synagog, etc.
2. Drop final E in such words as definite, infinite, favorite, etc., where the preceding vowel is short. Thus spell opposit, preterit, hypocrit, requisit, etc.
3. Drop final TE in words like quartette, coquette, cigarette, etc. Thus spell cigaret, roset, epaulet, vedet, gazet, etc.
4. Drop final ME in words like programme. Thus spell program, oriflam, gram, etc.
5. Change PH to F in words like phantom, telegraph, phase, etc. Thus spell alfabet, paragraf, filosofy, fonetic, fotograf, etc.
6. Substitute E for the diphthongs Æ and Œ when they have the sound of that letter. Thus spell eolin, esthetic, diarrhea, subpena, esofagus, atheneum, etc.

The Association says: "English spelling is the worst in the world. Millions of dollars are wasted each year in the writing and printing of useless letters. The education of our children is retarded and the progress of our people is hampered by our cumbrous, illogical, misleading orthografy. The scholarship of the world is almost a unit in demanding a change."

See "American Philological Association," page 261.

The Alaska-Klondyke Gold Fields

THE BRIGHT AND DARK SIDES OF THE NEW ELDORADO

Information of General Interest

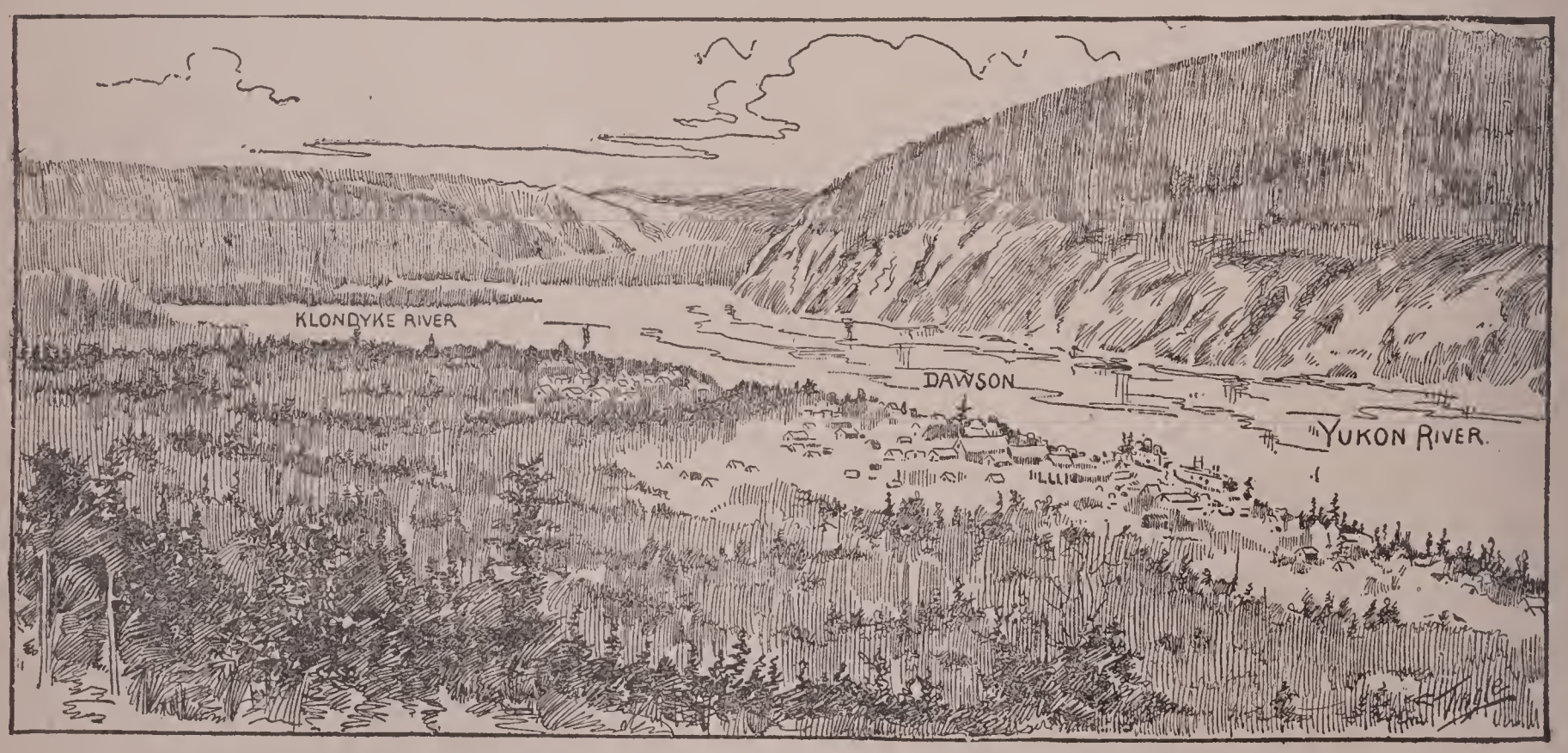
The reader will find on page 307 of this work, an accurate description and a map of the Territory of Alaska, the date of its annexation to the United States, etc. The recent discovery of gold in large quantities both on American and Canadian soil along the Yukon river and its tributaries, adds great interest to any details referring to this latest addition to Uncle Sam's empire. On the other hand, people have, as a rule, very crude and often very erroneous ideas in relation to Alaska—the means of getting there, the cost and length of time required to make the voyage—so the following facts and information will be of interest to those who intend to stay at home, as well as those who intend to make the excursion.

The name "Alaska" is a corruption of Al-ay-ek-sa, the name given by the native islanders to the mainland, and signifies "great country." It contains nearly 600,000 square miles of territory, or is nearly one-fifth as large as all the other States and Territories combined. It is larger than twelve states the size of New York.

For years past it has been known that gold existed there in large quantities, and could be obtained either by placer-mining or by quartz-crushing. A large company, the Alaska-Treadwell, on Douglas Island, has been working the latter process with undiminished success. But, more recently, facts have come to light that give complete evidence of enormous deposits of gold along the upper part of the great Yukon river and its tributaries, especially the river Klondyke, the name of which has become suddenly so popular. These streams all flow down from that portion of the Rocky Mountains that rises in the North-West Territory of Canada. The present discoveries which have caused so much excitement are located so close to the 141st degree of W. Longitude—which forms there the official boundary between the American and British possessions—that it is believed by many that Dawson City—the new mining camp—and the region around it belong, by rights, to Uncle Sam.

It has been declared that there is the making of an international row on the Yukon, where American miners, believing themselves to be on United States soil, will tolerate no interference by the Canadian police, and where English miners of like mind will demand the enforcement of their own laws by their own peace officers. Professor George Davidson, for many years at the head of the U. S. Government Geodetic Survey on the Pacific coast, has made the following statement based upon his own investigations:

THE BOUNDARY:—"Whatever doubt has been cast upon the position of the whole Klondyke district being in British Columbia must have arisen from a misunderstanding of the dispute existing upon the proper location of that part



PANORAMIC VIEW OF THE YUKON AND KLONDYKE RIVERS.

of the boundary line lying eastward and southward of Mount St. Elias. The north, or meridian line of the boundary has been accurately determined. The latest information places the independent determinations of this meridian made by the two Governments at the boundary line within the width of an average sidewalk. The only local dispute that could possibly arise would be in the Forty Mile Creek district, because the boundary line crosses sharp, steep mountain ridges of 2,500 and 3,000 feet elevation, and inferior instrumental means might cause a slight doubt as to the direction in some instances. However, no dispute has arisen in the district, nor is it likely that any will occur. There is no doubt that the line has been satisfactorily laid down." We may, therefore, accept as fixed the fact of the British ownership of the Klondyke region; but must add that there is not a doubt in the mind of any mining expert that the precious metal is to be found at an early date on Alaskan soil, in much larger quantities than discovered until now. In the meantime, we give herein the Rules and Regulations in force for securing a Klondyke mine:

THE GENERAL RULES FOR ACQUIRING A TITLE to a claim in the western states apply to Alaska and the Canadian northwest. The governments make no charge for the land, but the holder is required to do at least $100 worth of work on his claim every year for five years to get an absolute title to it. He has the privilege of doing the entire $500 worth of work at once if he chooses to do so, and on proof of it may get his patent. The Canadian government exacts $5 a year from prospectors as a license fee.

The man who locates a claim is allowed a full year after he puts up his location notice for working the first assessment, during which time his right is absolute and is also negotiable. A purchaser fulfilling the obligation entered into by the discoverer enjoys the same rights.

In Alaska and on the Klondyke the first miners in a district hold a meeting and fix the size of the claims, and also agree as to how much work shall constitute an assessment. The miners also elect a register, and his fee for recording or transferring is the only one incumbent upon the owner of a claim.

THE PROCESS OF "PLACER" MINING in Alaska and the Klondyke is about as follows: After

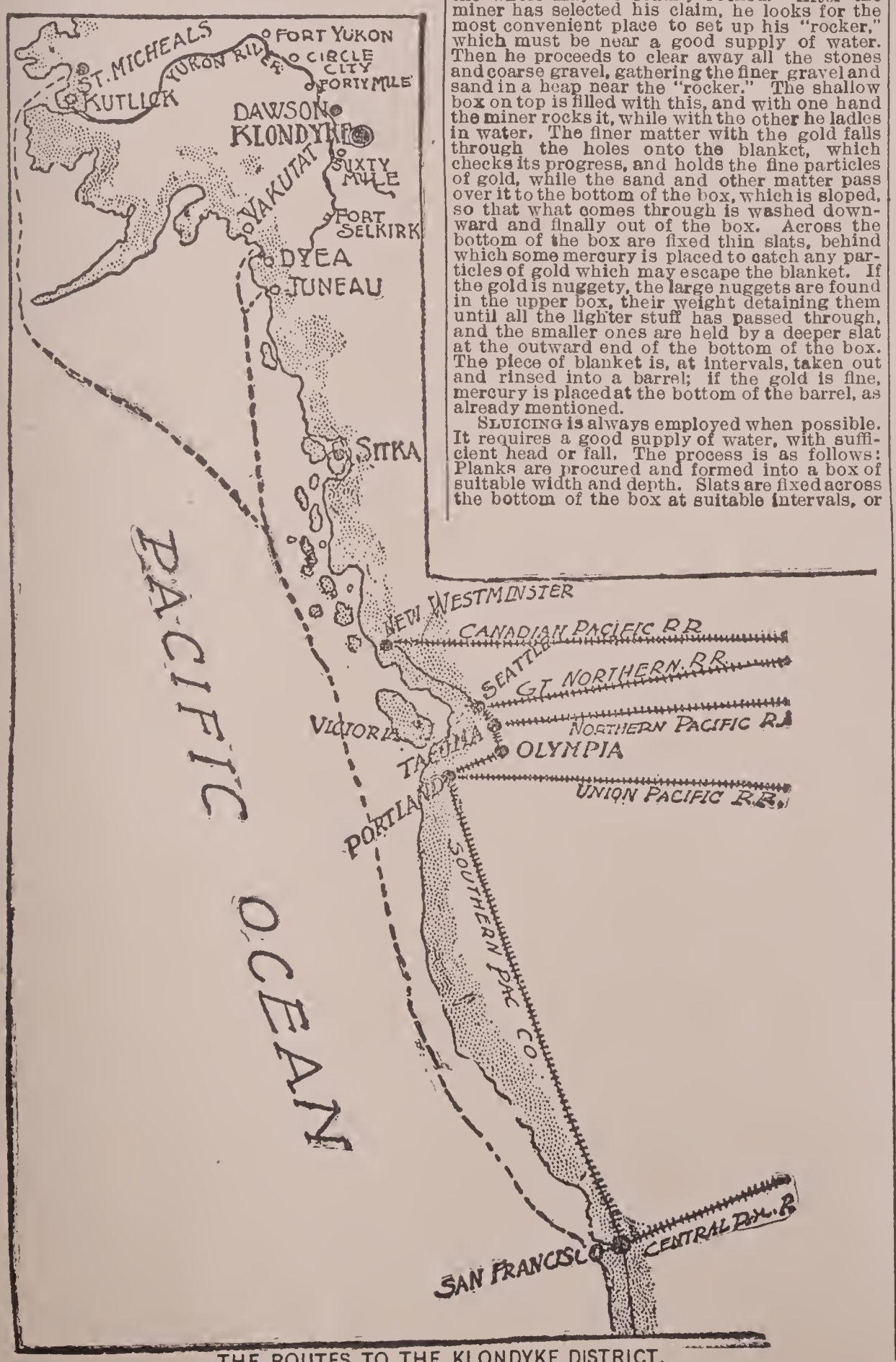
clearing all the coarse gravel and stone off a patch of ground, the miner lifts a little of the finer gravel or sand in his pan, which is a broad, shallow dish, made of strong sheet iron; he then puts in water enough to fill the pan, and gives a few rapid whirls and shakes; this tends to bring the gold to the bottom on account of its greater specific gravity. The dish is then shaken and held in such a way that the gravel and sand are gradually washed out. Finally, all that is left in the pan is whatever gold may have been in the dish and some black sand, which almost invariably accompanies it.

Should the gold thus found be fine, the contents of the pan are thrown into a barrel containing water and a pound or two of mercury. As soon as the gold comes in contact with the mercury it combines with it and forms an amalgam. The process is continued until enough amalgam has been formed to pay for "roasting" or "firing." It is then squeezed through a buckskin bag, all the mercury that comes through the bag being put back into the barrel to serve again and what remains in the bag is placed in a retort, if the miner has one, or, if not, on a shovel, and heated until nearly all the mercury is vaporized. The gold then remains in a lump with some mercury still held in combination with it.

This is called the "pan" or "hand" method, and is never, on account of its slowness and laboriousness, continued for any length of time when it is possible to procure a "rocker," or to make and work sluices.

A "ROCKER" is simply a box about three feet long and two wide, made in two parts, the top part being shallow, with a heavy sheet-iron bottom, which is punched full of quarter-inch holes. The other part of the box is fitted with an inclined shelf about midway in its depth, which is six or eight inches lower at its lower end than at its upper. Over this is placed a piece of heavy woollen blanket. The whole is then mounted on two rockers, much resembling those of an ordinary cradle, and when in use they are placed on two blocks of wood so that the whole may be readily rocked. After the miner has selected his claim, he looks for the most convenient place to set up his "rocker," which must be near a good supply of water. Then he proceeds to clear away all the stones and coarse gravel, gathering the finer gravel and sand in a heap near the "rocker." The shallow box on top is filled with this, and with one hand the miner rocks it, while with the other he ladles in water. The finer matter with the gold falls through the holes onto the blanket, which checks its progress, and holds the fine particles of gold, while the sand and other matter pass over it to the bottom of the box, which is sloped, so that what comes through is washed downward and finally out of the box. Across the bottom of the box are fixed thin slats, behind which some mercury is placed to catch any particles of gold which may escape the blanket. If the gold is nuggety, the large nuggets are found in the upper box, their weight detaining them until all the lighter stuff has passed through, and the smaller ones are held by a deeper slat at the outward end of the bottom of the box. The piece of blanket is, at intervals, taken out and rinsed into a barrel; if the gold is fine, mercury is placed at the bottom of the barrel, as already mentioned.

SLUICING is always employed when possible. It requires a good supply of water, with sufficient head or fall. The process is as follows: Planks are procured and formed into a box of suitable width and depth. Slats are fixed across the bottom of the box at suitable intervals, or shallow holes bored in the bottom in such order that no particle could run along the bottom in a straight line and escape without running over a hole. Several of these boxes are then set up with a considerable slope, and are fitted into one another at the ends like a stovepipe. A stream of water is now directed into the upper end of the highest box. The gravel having been collected, as in the case of the rocker, it is shoveled into the upper box and is washed downward by the strong current of water. The gold is detained by its weight, and is held by the slats or in the holes mentioned. If it is fine, mercury is placed behind the slats or in these holes to catch it. In this way about three times as much dirt can be washed as by the rocker, and consequently three times as much gold is secured in a given time. After the boxes are done with they are burned, and the ashes washed for the gold held in the wood.



THE ROUTES TO THE KLONDYKE DISTRICT.

WINTER MINING.—A great many of the miners spend their time in the summer prospecting and in the winter resort to a method lately adopted and which is called "burning." They make fires on the surface, thus thawing the ground until the bed rock is reached, then drift and tunnel. The pay dirt is brought to the surface and heaped in a pile until spring, when water can be obtained. The sluice boxes are then set up and the dirt is washed out, thus enabling the miner to work advantageously and profitably the year around. This method has been found very satisfactory in places where the pay streak is at any great depth from the surface. In this way the complaint is overcome which has been so commonly advanced by the miners and others, that in the Yukon several months in the year are lost in idleness.

CLIMATE.—Winter usually sets in very soon after the middle of September and continues until the beginning of June, and is decidedly cold. The mercury frequently falls to 60 degrees below zero, but in the interior there is so little humidity in the atmosphere that the cold is more easily endured than on the coast. In the absence of thermometers, miners, it is said, leave their mercury out all night. When they find it frozen in the morning they conclude that it is too cold to work, and stay at home. The temperature runs to great extremes in summer as well as in the winter. It is quite a common thing for the thermometer to register 100 degrees in the shade.

The climate is wet. The rainfall in summer is heavy; although there is almost a continuous sun in the short, hot season, evaporation is very slow, owing to the thick moss, which will not conduct the heat. In consequence, the ground is always swampy. It is only after several years of draining that the ground will become sufficiently dry to allow the frost to go out, and then only for a few feet.

The diseases most met with in Alaska are dyspepsia, anæmia, scurvy caused by improperly cooked food, sameness of diet, overwork, want of fresh vegetables, overheated and badly ventilated houses; rheumatism, pneumonia, bronchitis, enteritis, cystitis, and other acute diseases from exposure to wet and cold; debility and chronic diseases, due to excesses.

COLONIZERS.—The statements from medical authorities and comparatively old inhabitants are sufficient to give a clear idea of the kind of colonizers that may face the hardships of the Arctic climate, really more dangerous and less comfortable in summer than in winter on account of the millions of mosquitoes and sandflies that torture the miners, at work or at rest. None but the hardiest and best constituted young men ought to attempt a permanent stay in this new Eldorado. Farmers, blacksmiths, men accustomed to heavy, open-air work will find the Klondyke region to a certain extent satisfactory and profitable, where, even if they do not "strike it rich," they can secure employment in the mines at a high rate of wages. Whatever they decide, however, they must take with them food supplies and tools, and, if really prudent, enough money to pay their fare back if health or courage fails them.

There is positively no opening in the interior for professional men, such as lawyers, doctors, clerks, book-keepers, salesmen, etc., and very little, if any, for mechanics, carpenters, etc. Every practical miner is fairly handy with tools, and with the help of his friends can do all the necessary work in building his log cabin. The chances in the mercantile line are very limited, owing to the difficulties of transportation.

HOW TO GET THERE:—From June to September of every year the navigation is opened on the great Yukon river, and stern-wheel steamers ply its waters from the Pacific Ocean to Dawson City. The starting point is from St. Michael's Island which is reached by steamers from San Francisco and Seattle. The last United States village of any importance passed on the riverside before reaching the Canadian boundary is Circle City, a town of 2,000 inhabitants before the Klondyke excitement began, but now reduced to less than a score of inhabitants. It is in the vicinity of the tributaries of the great Yukon that the placer-gold is found in paying

quantities. The trip up the river takes from 15 to 20 days, and when starting from St. Michael's after August 20 it is very doubtful if the steamer can reach Dawson City before the ice closes the navigation season for the year.

But there are other routes beside the long river journey of over 2,200 miles of dangerous navigation, making the trip from Seattle to Dawson City altogether 5,000 miles.

By taking steamer either at San Francisco, Portland, Seattle or Victoria, B. C., for the city of Juneau and the harbor of Dyea, the trip is reduced in distance from Seattle to Dawson City to a total of 1,600 miles, and the cost very materially reduced, though not in proportion to the distance.

From Dyea (1,000 miles from Seattle) the trail leads across high mountains through barely practicable passes. Here one depends on one's stout legs and sure feet, or at best on sleds drawn by dogs. Chilkat Indians are also employed—at a high rate of wages—to carry freight over the passes. The trip is dangerous and most trying, but it is gradually getting less so, since the large traffic across the mountains is bringing with it improved facilities. It used to be necessary to bring along material for building a boat or a raft over the succession of lakes (Lake Linderman, Lake Bennett, etc.) met with on the other side of the mountains. There is a saw mill now at the head of the first lake, where boats can be purchased at enormous prices. These boats are put on runners in winter time and dogs drag them over the frozen waters. When a man has but little money and must do everything himself, including the carrying along on his back some 800 pounds for which successive short trips are to be made through the snow and frequent storms, the prospect is decidedly discouraging. Especially as success, *i. e.*, the certainty of securing a paying claim is not assured, by any means, and thus terrible perils and suffering may be faced for no particular results. Still, hope is so strong in the human heart that thousands of brave men and women—yes, women too—are daily joining the earlier crowds in their breathless hunt for gold.

The pass most frequently used by the overland travelers is the Chilkoot pass, 3,500 feet above the sea level; the other two are called respectively the Chilkat and White Mountain. The Canadian Government is discussing the building of a road over the latter pass. This would bring Victoria, B. C., within 14 days of the Klondyke district and reduce very materially the perils of the trip.

There is also an "Overland' or "back door route," said to be practical in summer. By train to Calgary, British Columbia; stage road forty miles to Athabasca Landing; by Mackenzie River and tributaries to Fort MacPherson, 1,900 miles by boat or canoe travel; from Fort MacPherson the route is up the Peel River to its headwaters, which almost penetrate the Klondyke region. Total time required for trip estimated from sixty to ninety days.

WHAT TO TAKE ALONG.—For the benefit of those inexperienced in mining who desire to go to the Alaska gold fields, an old miner prepared the following list of things which are absolutely necessary for a prospecting tour in the north:

Fur-lined sleeping bag, rubber hip boots, extra heavy wool underclothing, preferably lined with natural wool; fur-lined gloves, mackintosh, cap which will pull down over the face, two pairs of extra heavy blankets, rubber blanket, dark goggles.

Outer clothing should of course be as heavy as can be obtained. The above-named articles can best be obtained before leaving the coast. The goggles are very necessary to prevent blindness from the intense glare of the snow, especially in the spring.

Tools needed for prospecting are: miner's pan, light pick, half-spring, long-handled shovel, four-pound ax, sixteen-inch machete. The last-named is of great utility in cutting through underbrush and for a thousand and one other purposes. All of these can be obtained at a fair price in Alaska, or they can be carried as baggage. The same is true of the cooking utensils. Cooking utensils needed are: coffee-pot, small kettle, frying pan, two tin plates, two tin cups, knife and fork, and two spoons.

Any man can live quite well for some time if he is provided with the following portable articles of food: Flour, bacon, beans, coffee, baking powder, salt and pepper.

The following itemized bill, sold recently by a Chicago house, furnishes the best idea of the makeup of a comparatively cheap outfit, although every article composing it is of first-class quality:

3 suits heavy woolen underwear at $4.50	$13.50
4 pair heavy stockings at 40 cents	1.60
2 pair German socks at $1.15	2.30
1 pair hunting stockings	1.25
1 heavy sweater	4.50
1 lighter sweater	2.35
1 leather fur-lined coat, short	7.00
1 pair jeans trousers, lined with flannel	3.00
1 Mackinaw coat	3.00
1 pair Mackinaw trousers	2.50
1 suit buckskin underwear	$12.00
1 pair hip rubber boots	5.25
1 pair heavy miners' boots	5.00
1 pair heavy overshoes	2.10
4 blankets at $2.40	9.60
1 pair leather-lined mitts	1.20
1 pair woolen mitts	1.00
1 sleeping bag	12.50
1 sleeping cap	.75
4 canvas carrying bags	2.00
Tools, including two miners' pans, picks, shovels, axes, saw, file, knife	7.32
Total	$99.72

This is one of the cheapest of the outfits and does not include firearms and numerous other things found in most of the bills. One of the common purchases is a horsehide suit, costing $17. Many also buy a long coonskin coat, costing $32.

Another important item not included is that of provisions, some men taking $40 to $50 worth, composed for the greater part of two-ounce bottles of beef extract, canned soups, etc., and tea and coffee. With this usually goes a small cooking outfit costing $5.50. The principal purpose in taking these things is for emergencies when other provisions are not available.

ONLY SKIMMING KLONDYKE'S WEALTH.—The Klondyke placer miners are only gathering the gold washed off nature's great gold reserve in the Alaskan Mountains. This dust is found in the gravel of the little streams. It comes from a formation called the conglomerate, which is incomparably rich in nuggets and particles of gold.

When the miners find it no longer profitable to wash out the gravel they can attack the conglomerate, where they will be able to accomplish something by hand labor. Finally, there is the original source of gold, the veins in the hills. These must be of enormous value. They must lie untouched until the proper machinery for obtaining the gold is erected. A clear, scientific, and authoritative explanation of the geological conditions of the Klondyke and neighboring gold bearing rocks is furnished by Professor S. F. Emmons of the United States Geological Survey. Professor Emmons said:

"The real mass of golden wealth in Alaska remains as yet untouched. It lies in the virgin rocks, from which the particles found in the river gravels now being washed by the Klondyke miners have been torn by the erosion of streams. These particles, being heavy, have been deposited by the streams, which carried the lighter matter onward to the ocean, thus forming, by gradual accumulation, a sort of auriferous concentrate. Many of the bits, especially in certain localities, are big enough to be called nuggets. In spots the gravels are so rich that, as we have all heard, many ounces of the yellow metal are obtained from the washing of a single panful. That is what is making the people so wild—the prospect of picking money out of the dirt by the handful literally."

OPINION OF DIRECTOR OF THE MINT PRESTON.—"That gold exists in large quantities in the newly discovered Klondyke district is sufficiently proven by the large amount recently brought out by the steamship companies and miners returning to the States, who went into the district within the last eight months. So far $1,500,000 in gold from the Klondyke district, has been deposited at the mints and assay offices of the United States, and from information now at hand, there are substantial reasons for believing from $3,000,000 to $4,000,000 additional will be brought out by the steamers and returning miners sailing from St. Michael's the last of September or early October 1897. One of the steamship companies states that it expects to bring out about $2,000,000 on its steamer sailing from St. Michael's on September 30, and has asked the government to have a revenue cutter act as a convoy through the Bering Sea. In view of the facts above stated, I am justified in estimating that the Klondyke district will augment the world's gold supply in 1897 nearly $6,000,000.

"The gold product of the Dominion of Canada for 1896, as estimated by Dr. G. M. Dawson, director of the Geological Survey of that country, was $2,810,000. Of this sum the Yukon placers, within British territory, were credited with a production of $355,000. The total product of that country for 1897 has been estimated at $10,000,000, an increase over 1896 of $7,200,000. From this the richness of the newly-discovered fields of the Klondyke is evident.

"Of all the gold-producing countries, of course, the Klondyke is at present one of most absorbing interest. It strikes the imagination today as California did the minds of the forty-niners. It will add in 1897 possibly $6,000,000 to the gold treasure of the world.

"Now as to the influence of such addition to the world's gold, the influence it will exert depends mainly on how many years the Klondyke district shall continue a producer and how large its annual increment to the world's existing stock of gold shall be. There is every reason to believe that Alaska and the adjacent British territory are possibly as rich in gold as was California and Australia when first discovered. I have estimated that the Klondyke district will in 1897 produce $6,000,000 worth of gold. It will add to the product from year to year, probably for a minimum of one or two decades."

AGRICULTURAL POSSIBILITIES.—Dr. Sheldon Jackson, Commissioner of Education, before starting to Alaska recently gave the Department of Agriculture his views on the agricultural possibilities of Alaska. He says:

"The warmest friends of Alaska do not claim that it is rich in general agricultural resources, or that it will agriculturally bear comparison with the rich valleys of the Mississippi River; but they do claim that while there are large areas of mountains and unproductive land agriculturally, yet there are valleys and plains where, with suitable care, many of the earlier vegetables, fruits and grains can be raised.

"On Kodiak, on adjacent islands, and on the shores of Cook's Inlet, where there are small Russian Creole settlements, they have for three quarters of a century supplied themselves with vegetables and potatoes raised in their own gardens. During recent years the government and mission teachers in southeast Alaska have in some instances had good vegetable gardens. In northern Alaska, less than 100 miles south of the Arctic circle, the teachers of the Swedish Evangelical mission at Unalaska in 1891 cleared four acres of ground, on which they raised seventy bushels of potatoes. As that region has a frozen subsoil covered with a heavy coating of moss, the removal of the moss and the cultivation of the ground will cause the soil to thaw out at a greater depth than it would otherwise. So that years of cultivation will cause the ground to yield much more plentifully than when first cultivated.

"In 1887, on the site of Lake Labugo, on the headwaters of the Yukon, over 2,000 miles from Bering Sea, a missionary, passing along, saw ten heads of volunteer wheat, nearly ripe, on the 22d of August, in a place where some miners had camped the year before and dropped the seed.

"Not only in the mild belt of southern Alaska, but in the Arctic and sub-Arctic belt of northern Alaska, various wild berries grow and ripen in profusion (cranberries, currants, raspberries, huckleberries, blackberries, strawberries), and there is no question that if the Government places Alaska on an equal footing with the other States and Territories in the establishment of one or more experimental stations, it will be demonstrated that sufficient vegetables can be raised for the consumption of its people. And if there is found a section so far north that the profitable raising of vegetables and grains becomes impossible, that region can be utilized by the introduction of herds of domestic reindeer.

"Taking Norway and Sweden, where complete statistics are to be had, as a basis of calculation, and applying the same average to Alaska, it is found the country is capable of sustaining 9,200,000 head of reindeer, which will support a population of 287,500 living like the Laps of Lapland.

"The stocking of Alaska with tame reindeer means the opening up of the vast and almost inaccessible central region of Northern and Central Alaska to white settlers and civilization and the opening up of a vast commercial industry. Lapland, with 400,000 reindeer, supplies the grocery stores of northern Europe with smoked reindeer hams, smoked tongues, dried and tanned hides, and 23,000 carcasses per annum to the butcher shops. On the same basis, Alaska, with its capacity for 9,200,000 head of reindeer, can supply the markets of North America with 500,000 carcasses of venison annually, together with tons of delicious hams and tongues and finest leather. Surely the creation of an industry worth from $83,000,000 to $100,000,000, where none now exists is worthy of the attention of the American people."

POSTAL FACILITIES FOR ALASKA.—Arrangements have been completed for carrying the United States mail monthly between Juneau and Circle City, Alaska. Carriers will leave each end of the line on or about the first of each month. The arrangement applies only to United States mail addressed to Circle City and other points in Alaska. The mail is made up at Juneau and goes through to Circle City in a sealed sack which may not under any circumstances be opened in transit.

Forty Mile, Fort Cudahy, Dawson City, and other points in the Klondyke country, are in the Dominion of Canada, and any mail addressed to these points will not be included. It is feared, however, that Circle City, Alaska, having been abandoned in the rush for the Klondyke, all contracts for carrying the United States Mail into the Yukon, may have to be abandoned.

The superintendent of the Railway Mail Service, with headquarters at San Francisco, has had a conference with the Canadian postal officials, and unless the two governments can agree upon some plan for delivery of mail into the Yukon country, there is every probability of the United States mail carriers being dismissed.

The Elevator and Grain Trade

WHEAT HARVEST CALENDAR.

January—Australia, New Zealand, Chile, Argentine Republic.

February and March—Upper Egypt, India.

April—Lower Egypt, India, Syria, Cyprus, Persia, Asia Minor, Mexico, Cuba.

May—Texas, Algeria, Central Asia, China, Japan, Morocco.

June—California, Oregon, Mississippi, Alabama, Georgia, North Carolina, South Carolina, Tennessee, Virginia, Kentucky, Kansas, Arkansas, Utah, Colorado, Missouri, Turkey, Greece, Italy, Spain, Portugal, South of France.

July—New England, New York, Pennsylvania, Ohio, Indiana, Michigan, Illinois, Iowa, Wisconsin, Southern Minnesota, Nebraska, Upper Canada, Roumania, Bulgaria, Austria-Hungary, South of Russia, Germany, Switzerland, South of England.

August—Central and Northern Minnesota, the Dakotas, Manitoba, Lower Canada, Colombia, Belgium, Netherlands, Great Britain, Denmark, Poland, Central Russia.

September and October—Scotland, Sweden, Norway, North of Russia.

November—Peru, South Africa.

December—Burmah, New South Wales.

LOOMING up in the distant landscape of one of our great commercial centers, the huge grain elevator presents nothing either picturesque or impressive to the observer, except as it is suggestive of that vast and most important of all the world's industries, the grain trade, of which it is daily becoming an increasingly important factor.

The elevator is peculiarly an American institution, and made necessary by an immense exportation of grain to foreign ports. In continental Europe the methods in vogue for handling grain are of the most primitive kind, and calculated to excite the derision of the American, who is acquainted with our improved machinery and facilities for handling and storing grain in our great elevators. In the Black Sea ports of Russia, for instance, whole cargoes of grain are loaded into vessels from baskets borne on the men's backs between the storehouse and the point of delivery. A Swedish invention is a floating elevator with a jointed folding "leg" which, although far superior to the basket system, is almost as much inferior to the devices and improved appliances of the great elevators of American grain ports.

Scattered throughout the United States, from the small interior town to the great centers and ports of receipt and delivery of grain, may be seen the grain elevator, ranging in size and capacity from the insignificant to the enormous; the latter embracing within its huge dimensions a storage capacity for millions of bushels of the products of the farm, and possessing most ingenious appliances and machinery for handling vast cargoes of grain without manual labor.

The vast system of grain storage has been necessitated by the immense crop of the cereal products annually produced in this country, over and above the amount consumed in the United States. This grain must be stored until it is consumed or carried to foreign lands.

In the large cities, or grain centers of the United States, it is customary for one or more firms or companies, to own the grain elevators, and the business of such firm or company is limited strictly to the storing of grain. A fixed rate is charged for storage. In some cases the elevators are owned by the railroad company, on whose land they are located, and are leased to the elevator company. In other cases they are built and owned by the elevator company, whose profit lies in the compensation exacted from the owners of grain stored therein. The Inspection Department, which is an institution of the state gov-

ernment, employ inspectors, whose duty it is to examine all cars containing grain consigned to market, provided the cars are not to be reshipped to other points. The inspector determines the grade of the grain and places a ticket on the car, on which is written the car number, the kind of grain, and the grade. The inspection department makes returns of all cars received, the amount contained, and grade of grain, to the Registry Department, which is also a state institution. The Inspection department also makes returns to the Registrar of all shipments of grain from the elevators.

The duties of the Registrar are to exercise a supervision over the elevators, and keep account of all grain in each elevator and the number of receipts outstanding. When a commission merchant has grain consigned to him, he must have the receipt issued to him by the elevator company registered, and have the registry stamp placed upon the face. Until this is done no grain will be delivered from the elevator on such receipt.

ELEVATOR "C" AT LOCUST POINT, BALTIMORE, THE LARGEST IN THE UNITED STATES.

When cars are received into the elevator yard, an engine, which is in attendance for the purpose, runs them into the elevator, and each car is placed directly opposite a set of grain buckets, which apparatus will be examined hereafter.

Beneath each car door is a hopper, or as it is sometimes called, a "receiver," which is a V shaped pit, set into the floor (see figure 5 H). Almost immediately above the receiver and opposite the car door, are two chains or ropes attached to the steam shovel (see figure 4). This machine is so constructed that it draws the shovels toward it by means of these chains or ropes, which wind around a pulley drum (see figure 2 C) until the shovels are drawn to the car door, then by a peculiar contrivance the chains are relaxed and the shovels can be once more taken back for a fresh load. These shovels are made of wood, a ring being fastened on each end of them by which the chains are attached or detached at will. The inspection ticket is taken from the car and a copy of it placed in a small elevator chute, which carries it into the cupola of the warehouse, where the weighman is waiting to weigh the grain (see figure 2 E). This copy of the inspection ticket he enters on his book. A signal is then given to the weighman

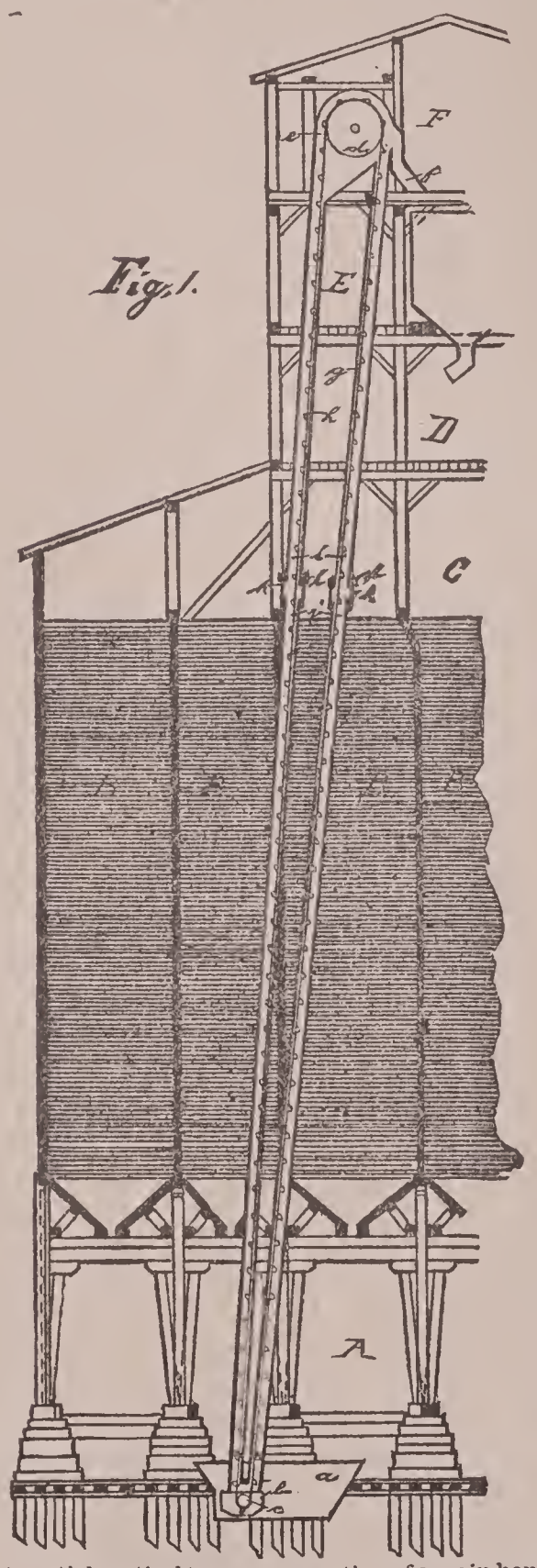
by men stationed below who pull a rope running up and attached to an arm, or, in some cases, a bell. When the rope is tightened the arm is raised, or the bell is rung, and the weighman knows that the car is ready to unload. After this signal is given the process of unloading is begun.

The car door is opened and the grain spouts out and falls into the receiver beneath. After all the grain that can be got out in that way has run out, a gang of men (two to each car) proceed to use the shovels. They enter the car, which is only half full, and digging the shovels into the grain, hold them in position. Relaxing the chains sets the drums in motion and draws the shovels to the car door, full of grain, which falls into the receiver.

The chain is then relaxed, the shovels are once more drawn back for another load, and are placed in another part of the car. The same operation is repeated until the car is cleared of grain, when it is swept clean with brooms. By this simple and ingenious contrivance a car load of from 700 to 1000 bushels of grain is emptied at an expense of twenty cents, whereas to perform the same operation by manual labor would cost seventy cents, besides occupying a much longer time. The receiver is so arranged that the flow of grain can be regulated to a minimum speed. This is necessary, as when the grain runs into the receiver it is caught by buckets (see fig. 6) and carried to the upper part of the elevator, and if the grain were to run in too fast the buckets could not carry it all, and the "boot," which is a box under the buckets (see fig. 5), would be choked. This flow is checked by means of a slide (see figure 5 I) which moves up or down.

The buckets, which catch the grain as it runs downward from the receiver, are riveted to an endless belt, which runs over drums, one at the top and one at the bottom of the building (see figure 1). The buckets are made of tin or sheet iron, and are about a foot apart. This bucket-belt is called an "elevator," and it is inclosed by what is called a "leg," which is simpy a wooden box covering (see fig. 1), starting from the drum at the top and running to the drum at the bottom of the building. Through this leg the buckets are carried by the belt, filled with grain. The lower drum is encased by the "boot," and though there is plenty of room in this "boot" for the buckets to pass around the drum, yet sometimes a piece of wood gets into the "boot" or the "boot" is choked by the grain running in too rapidly, and the buckets are torn from the belt, or the belt breaks. In such a case the "boot" must be opened and the obstruction removed. Before this can be done, however, the drum must be stopped, which draws the belt. This can now be done in a few seconds by means of a very simple contrivance which consists in a rope running from the lower floor, connecting with swinging beams, joined to the drum at the top of the elevator, which throws the machinery out of gear. This improvement has been lately introduced under the Lotz patent. The buckets catching the grain as it falls into the receiver, carry it up to the top drum. As the buckets pass over the drum they become inverted, and the grain pours out into the scale-bin (see fig. 2 "f"). When the grain is all out of the car a signal is given by letting fall the arm or pulling the bell cord. The weight of the grain is then noted. This weight is taken by pounds, and afterwards reduced to bushels. In most of the states the number of pounds per bushel of corn is fixed at 56, oats 32, rye 56, barley 48, and wheat 60. The number of pounds that the car load weighs is taken down in the book, by the weighman, the kind and grade of grain and the

Fig. 1.



A partial vertical transverse section of a grain house and one of the elevators therein. A denotes lower floor, B B B storage bins, C D E and F the four stories of the cupola, a tank, b elevator boot, c lower elevator pulley drum, d upper elevator drum, e elevator head, f spout, g elevator belt, h h buckets.

number of the bin into which it is to go, is then sent down to a man below who arranges the spouts running from the scale bin, so that the grain shall run into a bin containing the same kind and grade of grain as that in the scale, and into the bin numbered in the memorandum.

The weighman then pulls a handle which opens the spout hole in the bottom of the scale-bin, and the grain runs into the spouts thence to the storage bins. The person who arranges the spouts must understand his business thoroughly, as the mixing of different kinds of grain would entail much trouble, and in some cases loss.

The spouts are square conduits made of wood through which the grains run in any direction that they are pointed.

Each spout is so arranged that it will empty into any one of several other spouts, and these in turn may be placed so as to run the grain into any one of several other bins, each one of which is numbered. By this means any one of a large number of bins may be reached from the same starting-point, namely, the scale-bin.

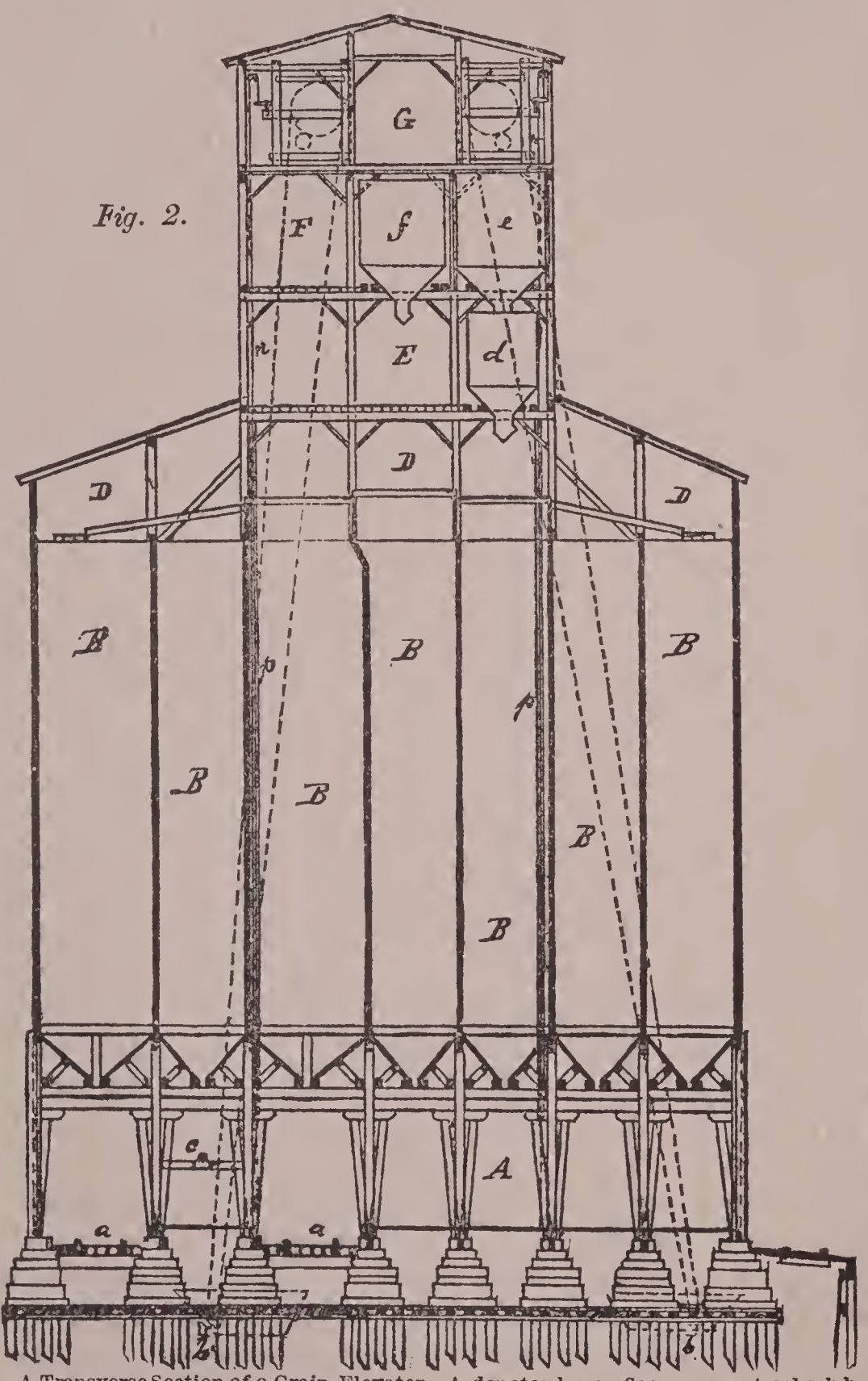
After the grain reaches the bin it remains there until ready for shipment, unless there is danger of its getting out of condition by heating, in which case it is run through different spouts until it resumes its proper condition.

The grain being landed in the bin, the weighman's book containing the numbers and initials of the cars, the number of bushels and pounds, and the kind and grade of grain, is sent down to the main office, which is usually located in the business portion of the city.

In elevators of large size there are at least five or six sets of elevator buckets for receiving, and the same number for shipping purposes.

There is necessarily a receiver, or hopper, as it is sometimes called, and a scale to each set of buckets.

Fig. 2.



A Transverse Section of a Grain Elevator. A denotes lower floor, a a car tracks, b b elevator-boots, c shafting for grain-shoveling machine, B B B grain bins, D spouting floor, E floor containing the shipping scale bin d, F floor containing shipping garner e, and receiving scale bin f, G machinery floor, n rope connecting with swinging beams.

The use of the "shipping elevator" buckets will be explained hereafter.

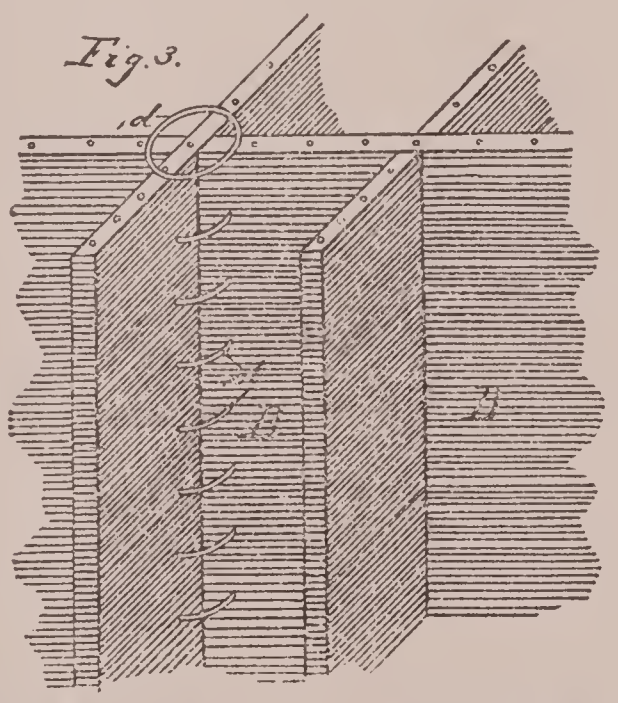
The receiving buckets are placed on one side of the elevator, and the shipping buckets on the other.

The railroad, over whose track the grain arrives, renders expense bills to the elevator company. From these expense bills the name of the consignee is ascertained. They also contain the numbers of the cars, the number and date of the way bill, the weight as ascertained by the elevator company, the kind of grain (but not the grade), consignor's name, the place of shipment, the rate of freight, and the freight and inspection charges. Upon payment of these charges a receipt is issued from the main office of the elevator company for the contents of the car, deliverable to the order of the consignee, dated the day the grain went into store; the receipt, however, not being ready for delivery until the next day.

In most cases the elevator company is agent for the road over whose track the grain is received, to collect the freight charges on the grain, which must be paid before the receipts will be delivered.

When the grain is consigned deliverable to the shipper's order, the person claiming to be the one entitled to receive the grain must produce the original bill of lading. The same is also the case, where a negotiable bill of lading has been issued by the road, and in fact, whenever the expense bill shows by its wording that the shipper retains an interest in the consignment, a bill of lading must be surrendered by the person obtaining the warehouse receipt. After the receipt has been delivered to the consignee, he usually sells it on 'Change (indorsing on the back the words "In Store" over his signature) and renders an account of sale to the consignor. The elevator company receives a compensation for every bushel of grain stored according to the time it remains.

The warehouse law of Illinois allows one and a quarter cents for the first ten days, and one-half cent every



A partial Transverse Sectional View of several Grain Bins, showing their construction. The letter d denotes rings for foot-rests for entering the bins.

ten days thereafter, on every bushel stored, but by agreement between the prominent elevator firms of Chicago, after the fifteenth day of November, on grain in good condition, storage will be at the foregoing rates, until four cents per bushel shall have accrued, after which no additional storage will be charged until the fifteenth day of April, provided the grain remains in good condition.

When the grain has lain in store between these dates long enough to have accrued four cents per bushel at the legal rate, then only four cents are charged, and the 1¼ cents rule is ignored. Storage is then figured by what is called the "winter storage" rule, which is four cents for storing between the 15th of November and the 15th of April, and one-half cent every ten days or part thereof previous to, and one-half cent every ten days or part thereof after the time allowed for winter storage; provided, that the four cents charged for winter storage fully *accrues previous to the 15th of April.*

For illustration, suppose that a car containing five hundred bushels of corn, goes into store October first, the receipt bearing that date, and that on October 31st the receipt is returned, and the grain is shipped from the elevator. The party who returns the receipt having received the grain, is obliged to pay storage. The grain having been in store thirty days he will have to pay per bushel, 1¼ cents for the first ten days, and one-half cent every ten days thereafter, making 2¼ cents, which, after adding 35 cents per car load for inspecting the grain out of store, which the elevator company collects for the state warehouse commissioners, will amount to eleven dollars and fifty-five cents.

But suppose that the grain for which the receipt was issued, is not taken out until winter storage has accrued; say not until February 15th; the storage in this case would be four cents per bushel for the time it had been in store after the 15th of November, and one-half cent for every ten days or fractional part thereof, previous to that date. From October first to November 15th is forty-five days, which would be 2½ cents; this added to the four cents will make 6½ cents per bushel, or $32.50, to which must be added the out-inspection charges as before.

Warehouse receipts upon blank indorsement, or indorsement to the order of another, are negotiable. On the following page is given the form of an elevator receipt, and also, a form of an order for delivery of grain for shipment. When a forwarding merchant wishes to ship a cargo of grain from store, he buys these warehouse receipts on the Board of Trade, and surrenders them to the elevator company that issued them, in return for which he receives an order (see the form).

This order he gives to the agent of the vessel, who sends it with the vessel to the elevator. The order is handed to the foreman of the elevator who attends to the loading of the vessel.

When the vessel is brought up against the dock, a spout is run from the elevator into her hatch. Spouts are then directed from the bins containing the grain to be run out, so that it will run into the shipping "receiver," which is similar to the one into which the grain empties from the cars when it is received into store (see fig. 5 H).

By pulling a rope, a slide in the bottom of the bin is opened and the grain runs through the spouts into the receiver, the slide in the receiver having been previously opened by raising a handle connected with a rod running up into the scale room, and to which another

handle is attached, by which the weighman can shut off the flow of grain from above when he wishes so to do.

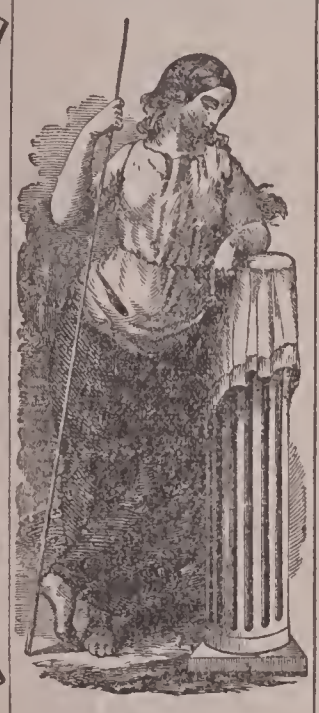
When the weighman sees the handle rise, he knows that the slide is opened and the grain is running into the buckets.

The elevator buckets carry the grain to the top of the house and drop it into a hopper bin. This bin is small, and is located immediately above the scale bin, so that when the slide is drawn the grain falls into it (see figure 2 e).

When this hopper bin is filled with grain, the weighman pulls a handle, to which is attached a rod joined to the slide spoken of. This lets the grain into the scale bin (see figure 2 d). He then pushes the handle back in place and the buckets soon refill the hopper bin. The weighman, in the meantime, records the

FORM OF AN ELEVATOR RECEIPT.

C. B. & Q. ELEVATOR.



BROWN, JONES & CO.

No. 4429 K. Omaha, May 22, 18 .

Received in store from Car 2923, Four Hundred and Twenty 04 Bushels of Two Corn, subject only to the order hereon of Jones & O'Brien, and the surrender of this receipt, and payment of charges.

This grain is subject to our advertised rates of storage.

It is hereby agreed by the holders of this receipt that the grain herein mentioned may be stored with other grain of the same quality by inspection. Loss by fire or heating at owner's risk.

420 Bush. 04 Lbs.

Brown, Jones & Co.

FORM OF AN ORDER FOR THE DELIVERY OF GRAIN FOR SHIPMENT.

ARMOUR, DOLE & CO.

*No.*_____ *Omaha,* March 7, *18* .

C. B. & Q. ELEVATORS.

Deliver Propeller James W. Jones,.....

Fifty Thousand Two Hundred and Ten .....[20] *Bushels*

Two Corn, account of Jansen & Smith.

50,210 [20] *Bush.* 2 Corn. BROWN, JONES & CO.

weight of the grain, as does also the tallyman, who is a person permitted to be present to witness the weighing of the grain in the interest of the shipper, or the vessel owners.

After entering the weight in his book the weighman pulls another handle, which connects with the slide in the bottom of the scales, and the grain runs through a spout below it. This spout is arranged to point in any direction, and is called a "revolving spout." Beneath this revolving spout are placed other spouts, some running into shipping bins, some into storing bins, and one running directly downward for the purpose of loading cars and wagons.

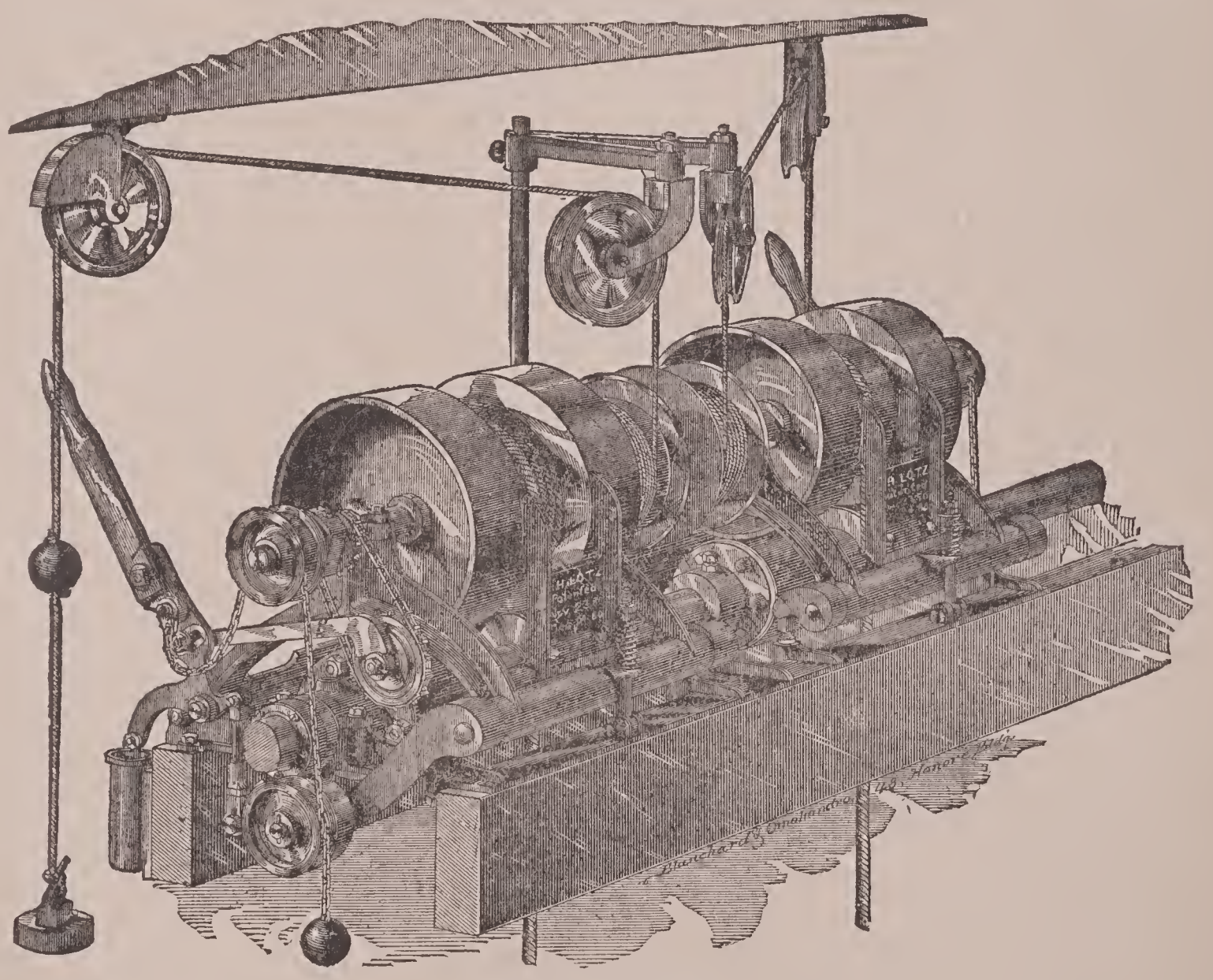
When a vessel is being loaded, the revolving spout is pointed directly over the spout running into the shipping bin; the grain runs through the spouts into

the shipping bin, thence through the spout running from the shipping bin to the vessel, into the hatch. When a wagon is being loaded the grain does not go into the shipping bins at all, but directly down through the spout mentioned, into the wagon waiting to be loaded.

After the vessel is partly loaded it becomes necessary to "trim" the grain. "Trimming" is the process of shoveling the grain into the corners of the hold of the vessel, so that no room shall be wasted.

The foreman of the elevator makes returns to the main office on a ticket, giving the name of the vessel, the number of bushels she took aboard, the kind of grain and grade, the name of the shipper and the date the boat arrived. Storage ceases when the boat arrives, on all receipts handed in previous to or on the day of her arrival. If, however, receipts on which the storage is "runing out" (that is, receipts so dated that one day more will cause one-half cent extra to accrue) the day the boat arrives, are not handed in until the day after,

Fig. 4.

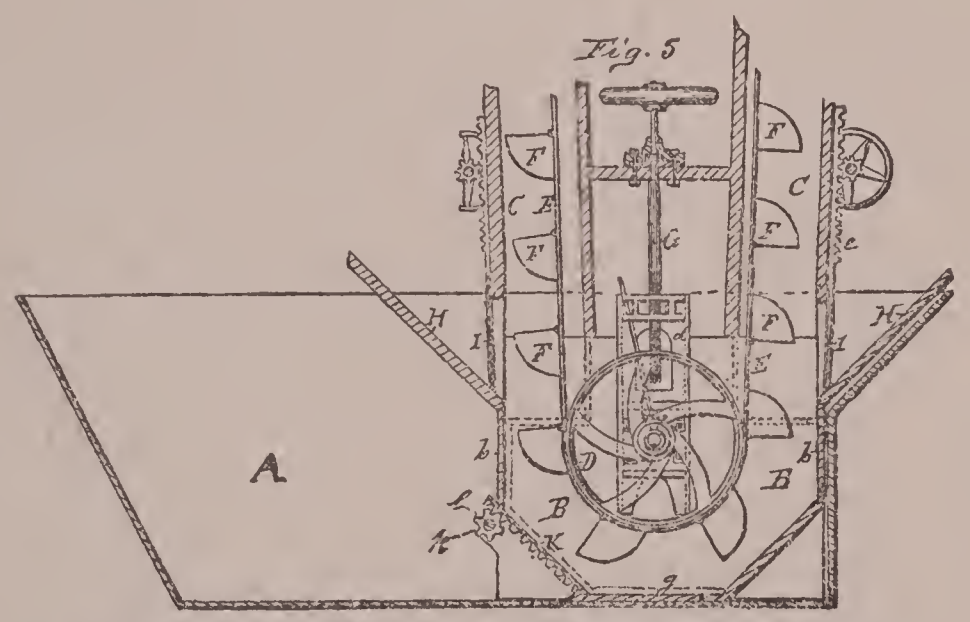


SHOVELING MACHINE.

then the extra one-half cent is charged without regard to when the boat arrived.

When a shipper loads out a car, or several cars, he gets an order in the same manner as in the case of loading a vessel and delivers the order to the agent of the railroad which is to furnish cars. The agent sends the car, with the order, to the elevator, and the grain is run into it in precisely the same manner as into the vessel, with the exception that the grain, instead of first running from the scale bin into a shipping bin, runs into the car by means of a spout running directly downward. In loading cars it is necessary to "trim" the grain the same as in the case of vessels. The cars are only about half filled when loaded, which gives the men room enough to use their shovels. Trimmers are furnished for vessels by the vessel owners, but the elevator company furnishes the men for trimming cars. When the cars are loaded they are switched out of the elevator and ticketed to the place to which they are consigned. They are then sent by the railroad company to their destination. Bills of lading are issued by the railroad to the shipper

from the weights determined by the elevator scales. Returns are made by the foreman of the elevator to the main office, where the storage bill is made out in the same manner as with vessels. The arrival of cars at the elevator causes storage to cease, as with vessels. It is the statutory duty of all elevator companies at Chicago to render a daily report of all shipments which were made the day previous, and also the receipts which were surrendered on these shipments. This report shows the numbers of the receipts, the date, number of bushels, and the kind and grade of grain. The receipts are cut with a canceling spindle, and representatives from the Registry Department compare the report so rendered, with the receipts, and finding it correct, enter it upon the books in the Registry Department. The receipts are then booked and filed away for reference in the vaults of the elevator company. All grain of the same kind and grade is mixed together in public warehouses of the class A and B as prescribed in the warehouse laws of Illinois. Class A comprises those warehouses in which grain is mixed, and located in cities having not less than 100,000 inhabitants. Class B includes "all other warehouses, elevators and granaries in which grain is stored in bulk, and in which the grain of different owners is mixed." Class C embraces "all other warehouses or places where property of any kind is stored for consideration." Chicago elevators are of the Class A. In some cases where grain, graded as a certain kind, is of such good quality that it falls slightly short of being graded one degree higher, or where it is of a kind different from ordinary, as, for instance, white number two corn, it is put into a special bin, upon request of the consignee, this request being granted except when the elevators are crowded for room. In the case mentioned (of "white" two corn) the Inspection Department creates no such grade, therefore the receipt is issued simply for "two corn," and across the face is written "special bin," and the number of the bin containing the grain. In fact, in all cases where grain is placed in "special bin" the receipts are written exactly as usual, with the addition of the notation across the face. When grain is put in special bin it is generally sold by sample and brings a higher price than otherwise, mixed as it would be, with grain of an inferior quality. In most elevators there are what are termed "pocket" bins. This is an ordinary bin, divided by partitions so as to form four smaller bins. Each of these compartments is called a "pocket bin," and are frequently used for special-bin grain. When grain gets out of condition it is "posted" on 'Change; that is, the number of the receipt and the number of the bin is given, and the owner of the grain notified to take it out of store. As will be seen by reading the receipt, loss by fire or heating is at the owner's risk, therefore it is the duty of the owner of the receipt to insure his grain and not that of the elevator company, their liability only extending to proper care and storage. Some elevators are also equipped for receiving grain from canal boats. The boat is brought up directly under a "leg" which is constructed for this special purpose. The leg is the same as is used for holding the elevator buckets, which has already been described. Through this leg, bucket belts pass, carrying the grain up and emptying it into a receiver spout, from which it runs into the scale bin. The leg, which stands nearly parallel with the side of the elevator, and almost perpendicular, is raised and lowered by means of a pair of arms running out from the elevator and attached to the leg at its top. On the inside of the elevator these arms, which are parallel, and joined together, are fastened on a hinge. On the lower floor of the elevator is a drum, around which is wound a wire rope. This wire rope runs into the upper part of the elevator, then across another drum immediately over the end of the arms nearest to the leg. It then runs down and is joined to these arms, so that when it is desired to raise the leg, the lower drum is set in motion and the wire rope is wound over it. By this means the rope is shortened and the leg is raised. When it is to be lowered the

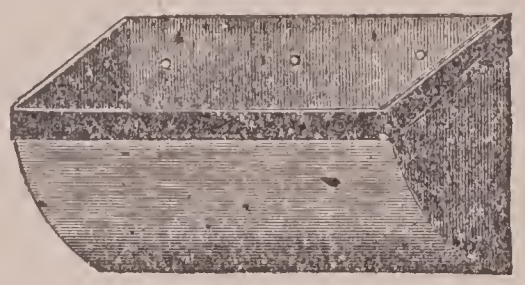


A Vertical Section of the lower end of the Elevator Boot and Tank. A denotes a metal tank, B the elevator boot with its sides joined to the timbers of the elevator leg C, c guides of sliding boxes d, D lower drum, E endless belt, F grain buckets, G screw to secure the even running of the belt and for tightening the same. H inclined grain-chutes. I adjustable slides or gates regulating flow of grain.

drum below is reversed. At the end of the arms near to the hinge is a pulley drum. Around this is run the belt which propels the drum in the leg, over which the bucket belts traverse. After the leg is lowered into the canal boat, the grain is shoveled around the leg, and is caught by the buckets and elevated into the receiver, thence into the scale bin, and after being weighed and run into a receiver, is caught by the buckets and thrown into a hopper, and thence runs through spouts into the storage bins.

Grain is loaded into a canal boat in the same manner as into any vessel. The inspection charges from canal boats are 50 cents per thousand bushels. The charges for inspection of grain into store as well as out of

Fig. 6.



GRAIN BUCKET.

store, are 35 cents per car load, 10 cents per team load, 35 cents per car load to team, and 50 cents per thousand bushels by vessel.

The inspection and classification of flaxseed has not been assumed by the state inspection department. An inspector is however appointed by the Board of Trade. His charges for inspecting flaxseed are 60 cents per car into store, 30 cents per car out of store, and 40 cents per thousand bushels going out by vessel. Cars holding flaxseed must be lined with cloth in order to prevent it from sifting out. This is not necessary with grain. When flaxseed is put into store the inspector makes a test of the amount of foreign substance mixed with it, and makes returns of the result to the elevator company. The receipt is then issued for the gross amount of bushels and pounds received, and on the back is indorsed the gross amount, the percentage of foreign substance it contains, the number of pounds this percentage amounts to, and the net amount of pure seed. When the receipt is sold, it is sold on the basis of pure seed only. When the holder of the receipt brings it in for shipment he is given credit for the gross amount mentioned in the receipt, and if the percentage of foreign matter in the flaxseed that he receives is larger than the amount indorsed on the back of the receipt, he receives compensation in money in adjustment of the difference. For illustration, if the difference between the two percentages is ten per cent, then ten per cent of the gross amount called for in the receipt is determined, and the value computed at the market rate, and paid over by the elevator company. On the contrary, if the difference is against the shipper, it is to be collected from him in the same manner.

There are, in the several elevators, various differences in construction, and in the manner of conducting them. For example, there are a variety of contrivances for signals. The arrangements of the spouts sometimes differ, and perhaps no two elevators are ever built exactly alike, but with these slight variations, the description that has been given will be found to be a correct one, and will apply to every elevator built in modern style. The bins in an elevator are built up of layers of square timber, laid one upon another (as seen in figure 3) and spiked together. The bottoms of these bins are made to slant to a center so that all the grain in the bin will run out when the slide is open. The bottoms of the bins are at least 25 feet above the main floor of the elevators, so there is no danger to the grain they contain from overflow of the river on which they are located. The diagrams show the plans upon which the elevators are constructed, and it will be seen that great ingenuity has been displayed by the inventors of our day in creating something approximate to perfection in facilities for receiving, storing and shipping eastward the great cereal product of our country.

THE NEW ORLEANS Cotton Exchange.

BEFORE our war of independence, a short stapled cotton of inferior value had been cultivated in the Southern Colonies and used for domestic purposes. This was the upland or bowed cotton of Georgia and South Carolina. The name "Bowed" was attached to it in foreign countries, from the operation of bowing to clear it from dirt and knots. The vibration of the bow strings opened the knots or matted masses of cotton, shook out the dust and raised a downy fleece. Yet America was hardly known as a cotton raising country, at the close of our war for independence. So small was our growth of cotton, that in 1784, an American vessel having on board eight bales of cotton was seized on its arrival at Liverpool as a smuggler, the authorities there not believing it possible that such an amount of cotton could be raised for export in the United States.

COTTON BUD AND BLOSSOM.

In the year 1800 our home manufacture consumed 500 bales of cotton of 300 lbs each or 150,000 lbs. Ten years later the consumption had risen to 3,000,000 lbs, and in 1815, at the close of our second war with England, to 27,000,000 lbs., making 81,000,000 yards of cotton, costing $24,000,000 and furnishing employment to 100,000 operatives.

The United States is the great cotton field of the world, and the demand for this product increases every year. In 1830 our productions amounted to one million bales annually, and the largest crop ever raised under the regime of slavery was a trifle over four millions of bales. In the south of to-day, under free labor, the annual cotton crop reaches to more than six and one-half million bales, valued at three hundred millions of dollars. In a genial and favorable climate; with the well adapted soil of our southern states, which is practically unlimited in its productive power, the future of our cotton interests will no doubt show greater strides of advancement than the past, and the next twenty years the skill and persistence of requited labor will probably result in its extensive manufacture throughout the south.

Cotton fibers vary in length from half an inch to an inch and three-quarters, and each fiber tapers to a fine point. These variations in length and thickness belong to plants of different kinds and countries, each kind being nearly uniform in both dimensions. All the useful

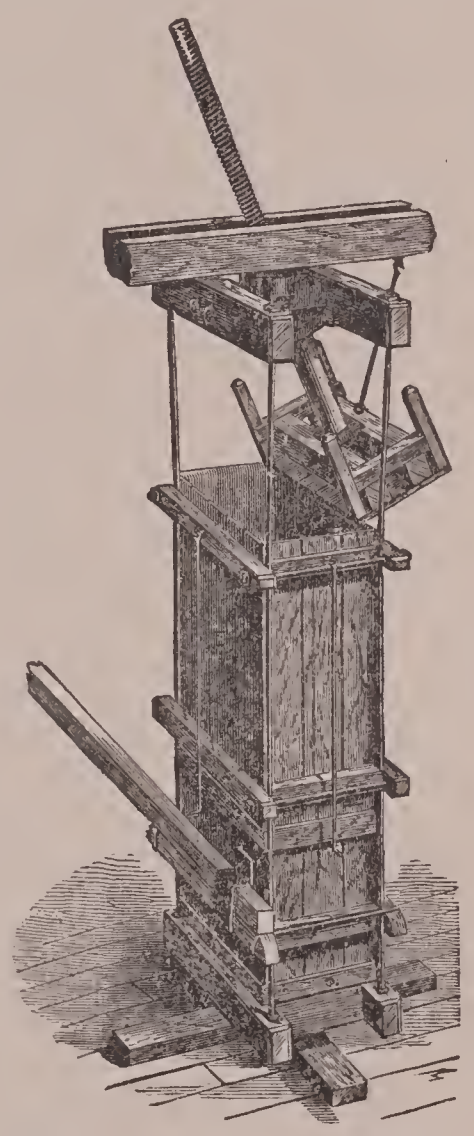
kinds grow upon plants, inclosed within pods, which protect it until ripened, when the pods burst from the expansive power of the imprisoned fibers and it lies a fleecy ball, ready for the hand of the picker. Scientists differ as to the number of varieties, some enumerating eight, some ten and some nearly a hundred varieties; yet for all practical purposes, three kinds only are necessary to be mentioned. Herbaceous cotton, which is of one summer's growth, and most largely cultivated in the United States, India and China. Its general hight is from 18 to 30 inches, though it may be made to grow eight to ten feet high. When the pod ripens and bursts, three locks of snow-white or sometimes yellowish down are seen, inclosing and closely adhering to the seeds, which form about two-thirds of the bulk. This species is planted each year in the early spring, and the cotton gathered. In India, it was formerly the custom to sow the seed broadcast; the natives were also careless at every stage, and hence the Indian cotton is much inferior to that of our own country. The shrub cotton grows wherever the herbaceous plant flourishes, and in cool climates it is an annual, and in the hottest, a perennial, sometimes yielding two crops a year, attaining a hight of 10 or 20 feet. Tree cotton is found in India, China, Egypt and Africa, and it attains a hight of from 12 to

PICKING THE COTTON.

20 feet. All the varieties flourish best on a dry sandy soil, and a wet season is greatly dreaded by the cotton planter. Cotton loves the air of the sea-coast, and the finest staple known is our own Sea Island cotton of South Carolina and Georgia, which, when grown inland, quickly degenerates in length of fiber and quality. Pine barrens, by plentiful and annual applications of sea mud as a fertilizer, have been changed into fruitful cotton fields, amply paying the expenditure of money and labor bestowed. The Sea Island cotton is much longer in the fiber than any other. It is very strong, even and has a silky texture. It is different from most of our other cottons, having black seeds, while the seeds of nearly all other varieties are green. It was introduced from the Bahama islands in 1786, and its culture soon extended along the islands of Georgia and South Carolina. The United States exceeds all other nations in the production of cotton, both as to quantity and quality. The seed is generally sown in March and April in rows from four to five feet apart, and in drills eighteen inches apart. Hand planting has been found better than any machine invented as yet. The young plants need careful weeding, and to have the ground well stirred between the rows. In June, the fields look like a huge flower garden. The harvest or picking season usually commences in August and lasts until November, as successive pickings follow each other as the balls ripen. The yield varies from 130 lbs per acre on the uplands

to 400 lbs on the richer lowlands. No machine has yet been found to do away with hand labor in plucking the ball of downy cotton from out the pod, and a smart hand can pick from 200 to 300 pounds per day.

After the cotton is picked in the fields, it is sent to the ginning mill, located at a convenient point on the plantation. The ginning of cotton consists in separating the seeds from the fiber, and the reader is probably familiar with the invention of the cotton gin by Eli Whitney, in 1793, by which the culture of the plant was entirely revolutionized, and such a wonderful impetus given to it, while the value of cotton lands was in many states doubled. In connection with the gin, located on the plantation at the "gin-house," is also a press for the purpose of compressing the downy fiber and binding it into bales. The ginning machine and the press now consists of greatly improved machinery, and may be run by hand, horse, water or steam power. Herewith is given an illustration of the Triumph Cotton Press, which is much in use in the south. It is simple in its construction and presses 400 lbs of cotton into a bale of about 40 cubic feet. After it is thus compressed and baled, it is shipped and when it reaches St. Louis, Vicksburg or New Orleans it goes to the Compress Works, where it is re-baled and re-pressed. Some of these presses in the compress works are gigantic pieces of machinery, one of them being over 45 feet high, 36 feet wide and weighing 600,000 pounds. The engraving on the next page gives a good idea of its immense size, strength and power. Sixty to seventy-five bales an hour are frequently turned out, and in no respect has the cotton manufacture taken so long a stride in the last five years as it has in the improvements made in machinery for compressing and baling the cotton.



PRESSING AND BALING THE COTTON.

Cotton excels all other textile substances in the capability of being spun into fine threads of uniform twist, strength and diameter. Take hold of a few filaments with the thumb and finger and draw them from a ball or pile and see how each fiber lays hold of and draws out another or more, and how easily they slide by each other and yet remain connected, and in almost parallel lines. These are the qualities which have made the cotton plant the king of plants, cotton culture, the employment of millions, and cotton manufacture, the most wonderful industry of modern times, only rivalled by those of iron and steel.

The manufacture of cotton, by all the various processes from cleaning and disentangling the fibres, up to the spinning and weaving into the cloth for our garments, is full of interest, and invites capital and enterprise. The south is just now awakening to the fact that it does not pay to export the raw material, have somebody else to put the labor into it that trebles its value, and then return it for the original raiser to buy at an added price. Originally the seed of the cotton was regarded by southern planters, as something of no value, and was destroyed by fire and in other ways; yet in time, it was found that the cotton seed as a fertilizer would return from one-fourth to one-third of the nourishment it had drawn from the earth. Still more, it was also shown that the cake left after extracting the oil was about as good a fertilizer as before. The cotton seed product of 1881 sold for $9,600,000, of which amount over four million dollars represented the labor bestowed upon it. It is estimated that a ton of seed when worked, costs about $14 to $15, of which from five to six dollars represents labor. The seed cake alone sells for as much as the labor; besides a ton of cotton seed gives about 35 gallons oil at 35 cents per gallon, or $12.25, and we have estimated nothing for the hulls, which sell to the paper pulp manufacturer.

COTTON SPECULATION.

If the capitalist has no desire to raise the cotton or gin it, or manufacture it or the oil, he still has a chance as a cotton factor or speculator.

Given a crop worth $300,000,000 and that cannot be used in the country where raised, and it would be wonderful if opinions did not differ as to the future price. Also consider that that price will be affected, not only by the amount raised at home, but also in South America, India, Egypt, and in other cotton fields throughout the world, and you will see a chance for opinions to differ as to probable yield, in the future. The value of the staple is, of course, affected by the amount, kind, quality of the crop, not only in

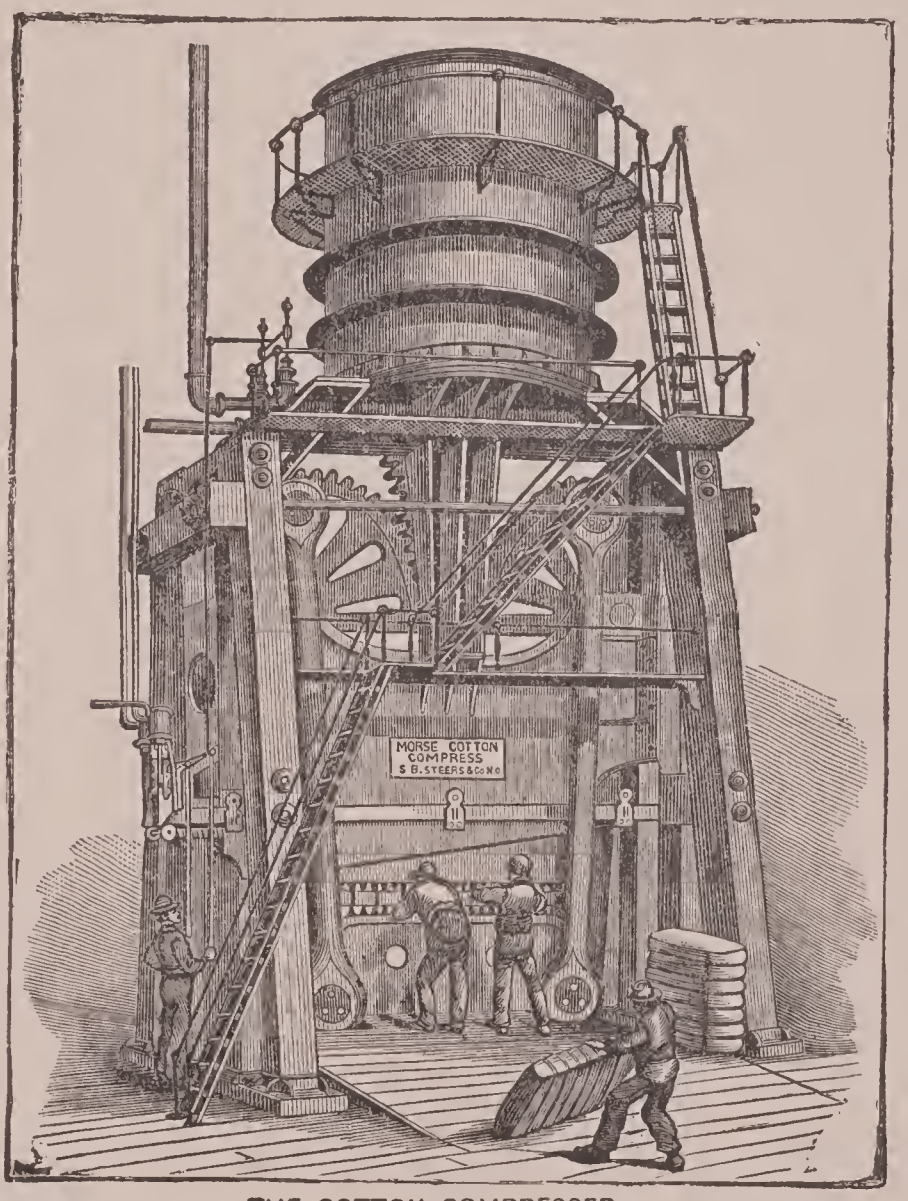
the United States, but also in South America, the India Islands, Egypt, Africa and India. Information derived from different sources will, of course, differ as to the points named. In addition to these causes for a difference of opinion as to the value of the cotton, another element of difference comes in the way of various opinions as to the demand, or the probable amounts to be used by the mills of the United States, England, etc. The demand from the mills is effected by the probable sales of manufactured goods in China, India, Africa, Europe and America. Hence various opinions as to price, and consequent tendency to buy and sell for future delivery according to the ideas entertained by the dealer. The New Orleans Cotton Exchange has become, from its natural location in the midst of the cotton producing section of our country in the metropolis of the south, the great point for the sale and purchase of cotton, as shipped to New Orleans, and also for extensive speculation and buying and selling for future delivery.

The New Orleans Cotton Exchange consists of an Association of 491 members, each of whom pays an annual membership fee of $100.

Inaugurated in 1871, with a membership of 100, which afterward dwindled to about 80, it seemed likely to die a natural death. New measures were adopted, especially in the way of gathering the news, daily, concerning the production prospects and condition of the cotton of the world. Under these improved plans of work and the increase of order and system, and in consequence of effectiveness in each department, the membership has grown as stated above, and the Cotton Exchange has become a recognized power and authority in all matters pertaining to the cotton crop.

With a view to learning all that could be learned of its system of work, we interviewed one of its members. With the kindly courtesy of the New Orleans business man, he promised to give us all the information in his power, and we were soon standing in front of the new and elegant building which the Exchange has erected.

"That," said our friend, "is the home of the New Orleans Cotton Exchange. Some three years ago, we found that our income from all departments of the Exchange was about $125,000 per year, but had not sufficient room to transact our business comfortably. In fact, we had outgrown our old accomodations so much, that we decided to build our own home. At a cost for building and ground of about $300,000 we have a home that suits us and that our people are proud of.



THE COTTON COMPRESSER.

"We expend about $30,000 annually in securing information, embracing every movement of any consequence in the staple from every shipping point along the Gulf and Atlantic coast, from Mexico to Boston. Nay, more, we have our correspondents watching the cotton movements as far as India, and each speculator knows all that can be known, and that is desirable, concerning cotton movements elsewhere, almost as well as along our own levees.

"In fact, each of us gets for $100 per year what it would otherwise cost us $30,000 to obtain. Each one of us knows within a few moments, the slighest change in any important cotton market in the world, and whether that change is for or against us. There is no long period of suspense, lest while we are buying or selling as guided by events here, another set of events somewhere else may have entirely changed the condition of affairs unknown to us."

Having entered the Exchange building, we find spacious halls, corridors and offices; marble floors, frescoed ceilings, and rich furniture. The interior of the Exchange has an air of comfort, spaciousness and stability about it, which impresses the visitor at once;

and upon looking further, the convenience of arrangement to facilitate business, not only in the Exchange Hall, but also in committee rooms and Board Rooms, is very apparent.

"I will introduce you to our secretary, H. G. Hester, who is a statistical expert, and so recognized by government, and wherever cotton is bought or sold. He will give you the details of our system of work."

We at once recognized in the secretary a man of that system, exactitude and genius for organization sufficient to control and direct a great enterprise; and we believed what our friend had previously said, that to him the Exchange owes its magnitude, thoroughness and efficiency.

After stating briefly the object of our call, and referring to a few especial points and features of the Cotton Exchange on which we desired information, the secretary said:

"The cotton traders of New Orleans found that something must be done to keep up with the times; that steam and electricity had completely broken down the old ways of doing business. For one thing, accurate information must be had at once of every change in cotton movements and all the causes affecting or directing these movements.

"*That* we supply by our telegraphic system as you do, on your Board of Trade in Chicago.

"A second matter demanding action, was the fact that from the time a bale of cotton left the planter's gin-house, until it left here on ship board and was fairly out of the Pass, there was a continual 'loss of weight from sampling, picking and stealing,' and a consequent continual dissatisfaction and suspicion of unfair dealing all along the line from planter to the manufacturer. This blot had to be removed or our trade would be lost, and you have no idea of what the loss amounted to each year. We have stopped that by our 'System of Supervision.' Receivers pay four cents a bale to the Cotton Exchange to meet the outlay of the $50,000 which our supervision costs annually, and that they do it cheerfully, shows something of what the pickings, samplings and stealings amounted to under the old system, or rather lack of system. The fact is that people could, and did, grow rich from the samplings and stealings of cotton in this market.

Again, usages and classifications varied so much that the trade seemed confusion confounded. This state of affairs gave rise to our present Cotton Exchange, by which we aim to avoid all such embarrassments to the trade.

THE OBJECT.

The charter declares the purposes of the Cotton Exchange to be, To provide suitable rooms for a Cotton Exchange in the city of New Orleans; to adjust controversies between members; to establish just and equitable principles, uniform usages, rules and regulations, and standards for classifications, which shall govern all transactions connected with the cotton trade, and to increase the facilities and amount of cotton business in the city of New Orleans, as well as to acquire, preserve and disseminate information connected with the trade; to decrease the risk incident thereto, and to generally promote the interests of the trade.

To carry these purposes into definite action and to definitely locate the responsibility of their performance, the following committees were established under the constitution and by-laws, viz: Committees on Membership; Information and Statistics; Trade; Classification and Quotations; Finance; Arbitration and on Appeals. The Committee on Membership have charge of all applications for membership and of charges against members for improper conduct. Committee on Information and Statistics have charge of all matters pertaining to the supply of newspapers, market reports, telegraphic information, and statistical information for the use of the Exchange; and it shall be the duty of said Committee to organize plans for obtaining early, reliable, and regular information, affecting the price of cotton producing and all cotton consuming sections. Another important committee is that on Classification and Quotation. It shall inquire and report as to the standard of other principal markets, and provide and keep on exhibition a sample of the standard of such markets. It shall keep on exhibition standards of this market, and supply them *sealed* to the members of the Cotton Exchange.

It shall further be the duty of this committee to furnish daily quotations of the different grade of cotton, based on the standards of this market adopted by this Exchange, which are to be posted prominently in the Exchange rooms.

In order to protect members from the tricks and tricksters of the trade, there is also a Committee on Credits, whose duty it is to take cognizance of all violations of commercial integrity, honor and good faith, represented to them by members of the Exchange whether such charges are made against cotton factors, cotton buyers or brokers of the city of New Orleans, or against merchants and planters in the country.

This Committee keeps in a book prepared for that purpose a record of all such charges as may be made, alphabetically arranged, which book shall at all times be open to the members of this Exchange.

It will thus be seen that this Cotton Exchange is an institution, where in a great measure, what is for the good of any is made the good of all, and thereby the old unsystematic way of doing business is superseded, false information absolutely a thing of the past, and fair, honest dealing, made a requisite even for the

THE NEW ORLEANS COTTON EXCHANGE.

dealings of outsiders with members of this Exchange.

"Mr. Hester, who are entitled to membership in this Cotton Exchange?"

"Let me answer that by directing your attention to our Constitution.

CONDITIONS OF MEMBERSHIP.

SECTION I—All persons who are principals are permanently engaged and of good standing in the cotton trade of New Orleans, and also any person who has the exclusive management and control of the cotton business of any house of good standing in the cotton trade of New Orleans, may be elected members of this Association.

SECTION 2—A card of admission as visiting members to the Exchange

rooms may be issued to any person not engaged in the cotton trade, on the recommendation of the Committee on Membership and the approval of the Board of Directors, upon the payment by such person of the regular dues of the Exchange.

ADMISSION OF MEMBERS.

Applicants for membership shall be balloted for, after being recommended by the majority of the Board of Directors.

"Now if you will please turn to

APPLICATIONS FOR MEMBERSHIP,

you will find the requirements before balloting, viz:

All applications for membership must be made to the Committee on Membership, and such as are recommended by the committee shall be submitted to the Board of Directors, and such as are recommended by the Board of Directors shall be posted at the general meeting room of the Exchange for ten days before being balloted for, with notice of the time at which such balloting shall take place.

The balloting shall be at the general Exchange rooms, and election day shall be every Wednesday.

Each elector shall cast one ballot—if in favor of the candidate, the word "Yes," if against, the word "No" written or printed thereon.

Three-fourths (¾) of the whole number of votes cast shall be required in favor of applicants, to entitle them to membership.

No name after being rejected, shall be again proposed within six months after such rejection, except upon the written application of fifty members in good standing, and in case of a second rejection, said name cannot be proposed within twelve months of such rejection.

Each member shall, within ten days after receiving notice of his election, sign the constitution, and pay to the Treasurer the initiation fee and the annual dues as provided by the Constitution.

INITIATION FEE AND ANNUAL SUBSCRIPTION.

The initiation fee shall be one hundred (100) dollars, and the annual dues one hundred (100) dollars, payable between the first and twenty-fifth days of November; and no member whose dues are not paid by the latter date shall be entitled to admission to the Exchange rooms until same shall have been paid in full, and any member who shall have failed to pay his dues for the space of one year, shall forfeit his membership, and can only regain admission by going through the same course, and paying the same initiation fees and dues as are now or may hereafter be prescribed in cases of new members; provided further, that any person elected a member of the Exchange after the first of March shall pay his subscription at the rate of ten (10) dollars per month for the unexpired portion of the year.

DUTIES OF MEMBERS.

Every member upon signing the constitution pledges himself to abide by the same, and also by the by-laws, rules and regulations of the Exchange.

"Mr. Hester, your provisions as to admissions seem very stringent in guarding against improper members, but suppose an unruly member is within your fold, what means have you of discipline?"

"As long as a member conforms to the rules and requirements of the Exchange, there is, of course, no difficulty, but should he violate the constitution, by-laws, or rules, be guilty of fraudulent breach of contract or any proceeding inconsistent with the rules of trade, or of any other misconduct, on complaint, he is summoned before the Committee on Membership and heard in his own defense. If, in the opinion of the Committee the complaint is substantiated, it is then laid before the full Board of Directors, and by a vote of not less than two-thirds of the members present, he is suspended or expelled, as the case may demand.

"So you perceive, we deal strenuously with any evil-doer, while giving him the advantage of two defenses."

Finding that the secretary was becoming pressed with the day's business, we left him, after having been granted the full freedom of the Exchange, promising to call on him again. Rejoining our friend who had strolled to another part of the hall, and who was watching the movements of a group of men who were gesticulating and vociferating at times, as though for their lives, we said to him:

"That, I suppose is your cotton gambling."

"No sir," said our friend, rather decidedly. "We do not gamble in cotton on this Exchange."

"But those men are buying and selling for future delivery, are they not?"

"Certainly," said he of the Cresent City, "they are dealing in futures, and this is our future department."

We answered that we should judge so, from the noise, and then requested our friend to explain in detail the operations of the 'future department,' and to show us that a 'future' contract was not gambling, but a legitimate and honest business transaction.

"Well," rejoined our friend, "I am a firm believer in the legitimacy of our futures, and will gladly come to their defense, but in the outset, you must not confound our 'future' with the 'puts,' 'calls' or 'straddles' of the New York Stock Exchange, or your Chicago grain market. We utterly reject those terms and all they imply. Now if you will turn in the pamphlet Mr. Hester gave you, to Rule 18, you will see it reads:

All contracts for the future delivery of cotton shall be binding upon members, and of full force and effect until the quantity and qualities of cotton specified in such contracts shall have been delivered, and the price specified in said contracts shall have been paid.

Nor shall any contract be entered into with any stipulation or understanding between parties at the time of making such contracts, as specified in Rule 1 are not to be fulfilled, and the cotton received and delivered in accordance with said Rule.

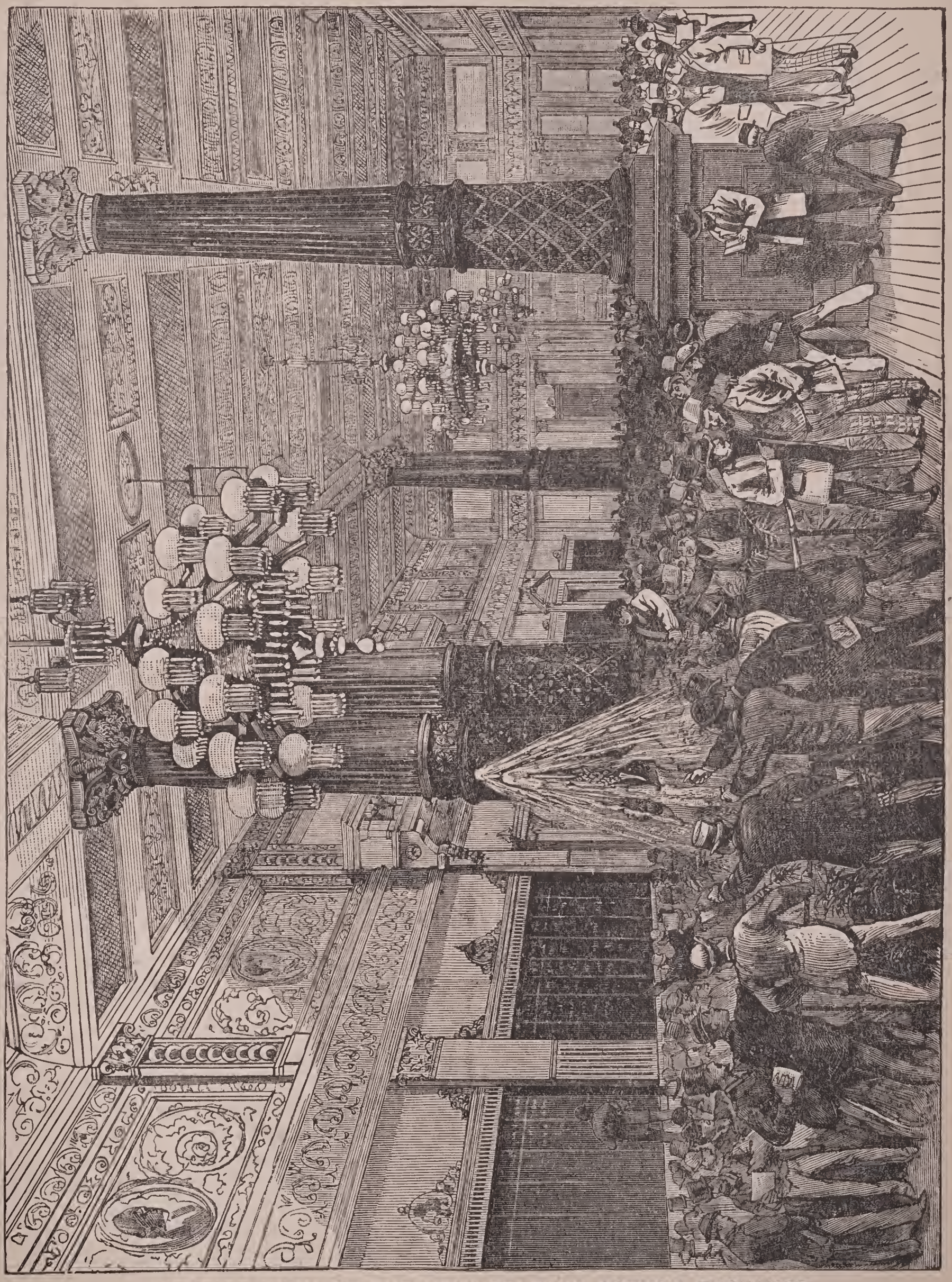
"Now is that plain English?"

We were obliged to admit that it was, and that the meaning of Rule 18 could hardly be mistaken or misconstrued.

"Now," said our friend, "let us look at Rule I, and there you have our form of contract."

FORM OF CONTRACT.

The contract for the future delivery of cotton shall be in the form as appears on the following page of reading matter.



INTERIOR VIEW OF THE NEW ORLEANS COTTON EXCHANGE.

"Now look here," continued the wide-awake man of the Futures, "you see this form of contract is obligatory, and no deals will be noticed or enforced, or in any manner recognized by the Exchange which are not in this form. Then again, all contracts are for 50 bales, and such large lot transactions in cotton in bales, precludes irresponsible persons without any capital from dabbling in the speculation. This contract is subject to all the rules and conditions of the Exchange, one of which as you have seen, makes delivery of the cotton obligatory on the seller, and absolutely prohibits any stipulation or even *understanding* that the cotton is not to be received, accepted and delivered."

"Now," said our friend, referring to the form of contract, "is that strong enough ?"

We answered that the contract seemed to be sufficient, but that we were still in doubt as to whether the cotton was actually delivered.

"As to that," said our guide, "let me explain to

FORM OF CONTRACT.

COTTON CONTRACT.

Office of JAS. K. WILSON & CO.

New Orleans,.....*18*.....

Bought for M.....

of M.....*45,000 lbs. in about One Hundred Square Bales Cotton, growth of the United States, deliverable from Press or Presses in the Port of New Orleans, between the first and last day of*.....*next inclusive. The delivery within such time to be at the seller's option, in lots of not less than fifty bales, upon five days' notice to buyers.*

The Cotton to be of any grade from Strict Ordinary to Fair, inclusive, and if Stained, not below good Ordinary, at the price of.....*cents per pound for Middling, with additions or deductions for other grades, according to the quotation of the New Orleans Cotton Exchange, existing on the sixth (6) day previous to the day on which the delivery is due.*

Either party to have the right to call for a margin as the variations of the market for like deliveries may warrant. And which margin shall be kept good.

This Contract is made in view of and in all respects subject to the rules and conditions established by the New Orleans Cotton Exchange.

Signed.....

Per.....

you that five days' notice is usually given of delivery, and that where the cotton itself or a transferable notice, which we shall take up presently, is not delivered on or before 12 noon of the day before the cotton is due, the cotton shall be settled for at the average quotation for spot cotton for the day the cotton is due with the addition of $\frac{25}{100}$c per pound against the defaulting party. But no defaulting party can claim settlement under the rule except upon evidence that the default was unintentional and not premeditated.

"When no notice is given the party so delivering shall present a transferable notice before 10 A. M. of the business day next before that of delivery. All transfers must be provided for regular five day transferable notice, and the party with whom it may lodge at 3 P. M. of that day *must present* it to the drawer thereof before 4 P. M. and receive a press order for the cotton."

TRANSFERABLE NOTICES.

"When notice of delivery on part of seller (or demand of cotton by a buyer, when he has option so

to do) is required by a contract, it shall be given by the party furnishing the cotton in the one case (and by the buyer in the other case) to the party requiring said notice before 10 A. M. of the fifth day, prior to the delivery.

"The party reciving the notice may transfer the same to a subsequent party, and it may be given from one transferrer to another. All notices must be for 45,000 pounds of cotton."

If this notice is transferred, it is done in writing in accordance with the Form of Transfer as shown on this page.

TRANSFERABLE NOTICE.

TRANSFERABLE NOTICE.

.....o'clock. New Orleans,.....18

To John Smith & Co.:

Take notice that on.....we shall deliver you 45,000 pounds in about one hundred square bales Cotton in accordance with the terms of our contract sale to you, dated.....at.....cents per pound. We pledge ourselves to deliver Press order to the last holder of this notice upon presentation of the same to us between the hours of 11 P. M. and 12 M. o'clock of the....., being the day previous to that of delivery. The cotton is to be received and held by the last acceptor hereof as custodian for us, insured for whom it may concern, and subject to our order, until we are paid at the rate of.....cents per pound.

John Jones & Co.

CONDITIONS:

In consideration of one (1) dollar paid to each of the acceptors, receipt of which is hereby acknowledged, it is agreed that the last acceptor hereof will between the hours of 11 A. M. and 12 M. o'clock on the day preceding the.....present the within notice to John Jones & Co., receive the press order for the Cotton therein named, and on the following day receive the cotton and hold the same as custodian and agent for the said John Jones & Co., insured for whom it may concern and subject to their order, until they are paid the full amount of.....cents per pound, and to settle with them on the basis of Middling, with allowance for variation of grade in accordance with quotations of the New Orleans Cotton Exchange, existing on the sixth day previous to the day on which the delivery is due.

It is further agreed that each acceptor hereon shall continue his (or their) liability to each other for the fulfillment of the contracts until this notice shall have been returned to John Jones & Co., and a Press Order specifying the cotton to be delivered, received by the last acceptor hereof from John Jones & Co., at which time all responsibilities of intermediate parties shall cease.

JOHN SMITH & CO.

If tendered by the drawer before 10 A. M. on the fifth day before delivery of cotton is due, or if tendered by transfer at short notice before 11 A. M. of the day before the delivery of cotton is due, this transfer shall be ac-

FORM OF TRANSFER.

FORM OF TRANSFER.

.....o'clock. New Orleans,.....18

Messrs. J. SMITH & CO.:

We accept the above with all its conditions and obligations, and you will please take notice, that in accordance therewith, we shall deliver you 45,000 pounds in about one hundred square bales Cotton on account of our contract sale to you, dated..... The Cotton to be paid for at the price of transferable notice.

JOHN SMITH & CO.

cepted by any member of the Exchange to whom cotton is due under any contract. The next thing for consideration is the form of Press Order, shown below.

This is the form of order observed in all cases where cotton is delivered on contract for future delivery.

"These," said our friend, "are our forms for contracts, notices and press orders for transacting the 'future' business in cotton.

"As the business of buying and selling cotton is largely done by brokers or commission merchants, the Exchange have, as a further precaution against fraud or deception, fixed the form of the order which the principal must give to the broker, and every order given to a member of the New Orleans Cotton Exchange to buy or sell a contract for the future delivery of cotton, as agent or broker of the party given the order, must contain the following words:

Subject to the Rules and Regulations of the New Orleans Cotton Exchange, make for my account, and as often as canceled replace a contract for the sale (or purchase) of one hundred bales of cotton deliverable (or receivable) in September.

"Every verbal or other order which does not in terms follow the foregoing form are presumed to have been given in that form, unless an express agreement to the contrary be proven."

PRESS ORDER.

PRESS ORDER.

No......

Time..... *New Orleans,*.....18

To..... *Press:*

On.....*day of*.....*deliver to the order of*.....*lbs. Cotton in about*.....*bales as instructed.*

.....*Broker.*

Weigher notified.

.....

per.....

"Now," said our friend, "let us see how these rules work. Suppose you wish to buy 100 bales of cotton say for next September's use, either to manufacture, export, fill an order, hold for a rise, or to sell again.

"As you are not a member of the Exchange, you seek a factor or commission merchant, who is duly a member, and you give him your order for, say 100 bales of cotton, deliverable in September, in the terms stated above.

"If he does not go upon the Board, he acts through a broker to whom he has given a duly executed power of attorney, which is filed with the superintendent, which binds the principal for all acts of his broker.

"The broker executes his errand and you are, by the act of your factor, the possessor of 100 bales of cotton, say at $9\frac{85}{100}$ per pound, as per the contract form, (given on a previous page).

"For this service you pay your factor a commission (fixed by the Exchange) of $12\frac{1}{2}$ cents per bale or $12.50 on a contract for 100 bales. If you were a resident of New Orleans, or a visiting member of the Exchange, this commission would be $6\frac{1}{4}$ cents a bale, and if a full member of the Exchange, it is $4\frac{1}{2}$ cents per bale.

"The party who sold the cotton to your factor or broker has the right to call for a deposit of a 'margin'

of from one to five dollars per bale when the contract is signed, and your broker has the same right, and also to demand that either the funds of such margin or a certified check for that amount be deposited with the superintendent of the Exchange. This margin is to be kept good, hence should the market go up or cotton become more valuable than when you purchased, you will naturally ask your seller to deposit a margin or security to protect you from loss in case he fails to fulfill his contract.

"On the other hand, should cotton decline, the party of whom you bought may ask you to deposit a margin, so as to be sure you will not attempt to avoid your purchase, and leave 45,000 pounds of cotton on his hands with a declining market.

"For these margins, certified checks, must be drawn to the order of any one of the banks, selected by the Board of Directors, said bank to be designated by the party calling.

"And yet some people would call you a gambler for this transaction. Do you see the element of a wager so far? You have made a bargain, signed the contract binding that bargain and dictating its provisions and terms. To make it 'more binding,' as the dealers say, both parties to that bargain have deposited an original margin, as a pledge of future performance. As the market has moved up or down, each party has been called upon for another or additional margin so as to prevent any tendency to break the contract.

"On the principle that prevention is better than cure, this deposit of margins is good, sound, healthy public policy, and I don't see where so far the gambling element puts in an appearance."

"But, my dear sir," said a gentlemanly bystander, "don't you see that it is all gambling, from beginning to end? Our friend who has just bought this cotton, believes he knows better than the other man, what spot cotton will sell for next September, hence he buys. The seller thinks cotton will not be worth the price, and hence he sells. It is a question of judgment of the future, and backing that judgment by money, and that is said to be the essence of gambling."

"So, then," said our guide, "a man who backs his judgment of the future value of a commodity is a gambler, is he? Why, then, do you buy your winter's supply of coal in August, and why make any provision for the future? Why, that reduces the world to a simple question of to-day alone. Do your words mean that any dealing of any sort or kind where the element of uncertainty enters, is gambling, a wager upon future values, future demands, future supply, growth of city, state, or nation; change of fashion, style or idea, that forecasting all these, and investing accordingly, is gambling, forsooth? Why, such a doctrine lacks every element of common sense, let alone business ken, and yet I am aware that that is why we men of 'Futures' are styled gamblers. We do have opinions—we do try to forecast future events, study future supplies and demands and all the questions that enter into that problem of future supply and demand; and when we have made up our minds, we act accordingly, and buy or sell cotton as we believe the market will go up or down."

Our mutual friend twinkled an eye at us, as he replied. "But my dear Cotton Future, you do not deal in actual cotton; why, look at your last annual report, and see how many times the future business exceeded that of spot cotton? Look at this, 15,706,400 bales sold for future delivery, and that on receipts at this point of only 1,373,175 bales, or over ten bales of futures to one bale of cotton actually here. Explain that, my worthy friend of the 'Future,' and tell us how dealing in such unsubstantial fancies is not wagering?"

Our cotton factor did not seem staggered by this at all. On the contrary, he smiled as he rejoined, "Well, my worthy handler of the scalpel, when you graduated from the medical college, and hung out your shingle as a practitioner of the healing art, what did you calculate on? Why, just this. Out of so many people a certain number are sure to be ill each year. Some years more and some less, but the average holds pretty true. Now, I will take my chance right here, when one doctor is getting old, and another unpopular, and so you wagered what—why, your whole life's success on your skill in reading the future, and a future of long years at that, and now you decry me as a gambler for reading a future two, three or six months long, and ask me why our 'future business' is greater than our spot business. Have you ever seen our transferable notices, and have you never seen them transferred? Our friend from the north is excusable, but I am ashamed of you. When you received a check as a fee, did you always go to the bank to cash it? Not a bit of it. You paid it over to your long suffering grocer, or your wife's milliner, with your indorsement. Your grocer probably paid it out to a wholesaler or jobber, and that $75 check represented just that amount of money multiplied several times over. It was not money, but it was a good enough substitute to buy sugar, meat, clothes, coal or anything else. So our 'transferable notices' are not cotton, but they

do represent cotton, and as the currency of this city is less by several hundred times than the business transacted, yet is the basis on which business commerce and manufacturing all rests by which it is done, so these transferable notices are the checks upon the Cotton Press bank, representing cotton there actually stored. That they pass from hand to hand in settlement of transactions is no more evidence of gambling than your check from your patient, paying as it did his, your and a dozen other debts, was a proof that all physicians are gamblers and their business wagering as to the fatality of disease."

To this our medical friend made no reply, except a wink of intelligence as he proceeded to wake up his Cotton Future friend on another tack. "I grant you that all that is a nonsensical hue and cry, but do these transferable notices and press orders really mean actual cotton?"

"Just as assuredly as that your prescription means an order for certain medicines at the drug store, do these notices and orders mean cotton at the cotton press."

"Well, granting that, but suppose all those afloat here were presented to-day, would they be honored? In other words, is there cotton enough in the city to fill them all?"

"More in proportion than of actual money in any bank in the city in the ratio of its deposits, and you know that were all the depositors in any bank to demand all their deposits in an hour, they could not get them. Besides some of our contracts are not due for a year.

"I tell you the doctrine of futures enters into all business, colors all transactions, comes into our daily life and hourly talk. Why gentlemen, do you know how the 'future' trade originated?"

We both expressed our deplorable ignorance, whereupon our friend proceeded:

"In the great European wars, when England was the paymaster of all Europe as against France, and immense stores of provisions had to be provided for, the great contractors devised buying for future delivery. Storage room could not be found for their supplies for six months. Money could not be obtained in the sums necessary for supplies by the year. If it could have been obtained, the interest would have eaten their profits, and so grain, flour, clothing, etc., was bought on future delivery, to be paid for when delivered. At least this is as far back as I have traced it. And now think for a moment what an economy 'contracts for future delivery' was in time, brain power, price of food, interest, storage, etc.

"As manufacturing both cotton and woolen grew and developed in England, contract for future delivery was found to be essentially necessary. The manufacturer needs, say 6,000 bales of cotton a year. To buy that to-day would cost him about $275,000. Six months' interest on that will be $11,000. Storage for six months will cost him several thousands more. Insurance for a year will add to its percentage, and watchmen, etc., all add to the cost, until about 16⅔ per cent will be added to the present cost. Our manufacturer wants, say 500 bales per month, and he goes to his broker and places his orders for that amount each month at prices varying from 9.66c to 10.32c per pound. Now he is ready to sit down and tell the cost of his goods manufactured, and be ready to quote prices for the merchant who don't want a year's supply, but does want to know the chances of an upward or declining market. To have bought his year's supply would have been ruinous to the manufacturer and cost the consumer more for each yard of cotton, while to have depended upon buying 500 bales each month of spot cotton would have rendered life a burden from its uncertainties, and the impossibility of making prices or knowing cost of production of manufactured goods, so as to answer the inquiry of a friendly retailer six parishes away. Or take the case of the English importer. What could he do without future delivery sales and contracts? He has orders from a dozen large customers, some of them large manufacturers. They depend on him to keep them supplied with cotton of good staple, in first rate condition and as cheaply as possible. Now, if the single manufacturer was at a loss for storage, and found not an ample supply of money, and hence a dearer rate of interest, etc., how these hills swell into mountains before the great importer. His warehouses may be large, but not ample for even a month of his sales, his bank account may take six figures of £, and his credit be large in proportion, but it dwarfs besides a year's requisition of his business. But here comes the future contract for delivery, and helps him out of his dilemma. In fact, I may say, gentlemen, that the cotton business could not be conducted without this branch of the trade."

"But," said our mutual friend, "Does not the 'future business injure the business in spot cotton?"

"Not at all, said our positive friend of the 'future.' "That result was predicted when we were starting the 'future' department, but instead of that we have found that it really increased our spot business. At

that time New York had all our business in Futures, and not a little of our spot cotton followed the correspondence and acquaintance formed in the former business in that city. New York had prestige, the power and ability to handle promptly and skillfully contract orders of any magnitude. New Orleans had much to gain and not a few things to learn, as well as some to unlearn. Hence the first two years the work of inaugurating and building up this important branch of the New Orleans Cotton Exchange was exceedingly difficult. But the Future Market of New Orleans has ceased to be an experiment and is a verity. We have demonstrated our ability, not only to conduct the business promptly and satisfactorily as in any other market of the world, but we have facilities for the receipt and delivery of cotton on contract which no other city can supply. Our very system of Transferable Orders augments the facilities with which trade may be conducted, as it saves large expenses in hauling. If you have looked at our rules at all carefully, you have seen that the rules of this Exchange forbid false and fictitious sales, and renders the parties concerned in such deals liable to suspension and expulsion. Our 'future' contracts bear precisely the same relation to the cotton trade, which bills of lading, warehouse orders, and warehouse receipts bear to ordinary mercantile transactions. Each contract represents the right to actual delivery of the cotton; each transfer transmits the title and right of ownership in just so many bales of cotton. In the hands of the last holder, it is good for that amount of cotton, just as much as a warehouse receipt covers property stored.

"You have a right to sell it just as much as a warehouse receipt covering 5,000 bushels of wheat. In the bargain which I supposed our Chicago friend had made, his 100 bales of September cotton had cost him a commission of $12.50 and an original margin of $5 per bale or $500. At present $512.50 is the outlay at which he is under his contract entitled some day next September to a Transferable Notice and a Press Order or 100 bales middling cotton, at 9.85c a pound.

"The notice and press order will procure you the cotton as certainly as you present them.

"If you have bought for a raise and find in September that cotton (middling) is worth 10.50 cents per pound, you can sell your 100 bales at that price, transfer your notice and press order, and your profits will be $292.50 less your commission of 12½ cents per bale, or $12.50, leaving you $280 as net profit. Twice handling of the cotton have thus been saved, and yet both your purchase and sale of cotton actually in existence have been as complete as though you handled the cotton with your own hands."

FAILURES.

"In case a member of the Exchange fails to carry out his contract from inability to meet financial obligations, or becomes insolvent, it is his duty to immediately notify the secretary of the Exchange by letter of the fact. This letter is then posted up on a bulletin in the Exchange Hall, where it may be seen by all members, and remains for five days, this being considered sufficient notice to the members of the Exchange of the fact of the failure, and operates to close all outstanding contracts with the insolvent member at once. No receipt or delivery, or transfer of contracts can be made by the failing member with any other member of the Exchange after the notice has been posted, until a full and satisfactory settlement has been made between the insolvent and his creditors. All contracts which the insolvent may be a party to at the time of his failure, shall be liquidated and settled at the average quotations of like contracts on the day the notice of failure was posted, unless the letter was near the time of closing the Exchange (within one hour from closing), in which case the settlements shall be made on the basis of the average settlements for the next day.

"Any member of the Exchange who may hold a claim or contract against a member who has given notice of his failure, has the right to demand an investigation of the affairs of the alleged failing member by the Supervisory Committee; and if the committee shall be of opinion and shall report to the Board of Directors that the member is able to meet and pay all his contracts and liabilities at maturity, he shall be debarred from the privilege of settlement under the provisions of the rules for settlement.

"In case a member who is really insolvent and incapable of fulfilling his contracts and performing his obligations with other members of the Exchange fails to give due notice to the secretary of the Exchange by letter as before explained, then on his failure to meet any contract or obligation, the party to whom such contract or obligation is due, and who is injured by such default, is expected to give the necessary notice to the secretary, who records it in a book called 'Record of Failures,' which is at all times open to the inspection of members, and this record is considered notice to them of the failure. If the member as above explained, does not give the secretary prompt notice of the default of a failing member, he is himself subject

to the discipline of the Exchange. He forfeits all rights under the contract to enforce the sale of the shares of stock in the Exchange, held by the defaulting member, and besides is liable to be suspended from the rights of membership in the Exchange for one year. And no claim or contract is considered settled with the failed member except by cash payment or actual delivery of the property.

"This arrangement makes it absolutely necessary, as well as for the party of the second part, to promptly report all failures to fulfill contracts. As soon as such failure is reported to the secretary, and the record made in his 'Record of Failures,' he delivers a copy to the Supervisory Committee, who examine into the truth or fallacy of the charge, and if a failure is clearly proven, they instruct the secretary to post the usual notice on the bulletin.

SETTLEMENTS.

Within three days after a notice of failure has been posted, the secretary of the Exchange must notify the member who has failed as to all claims against him in the 'Record of Failures.'

If the failed member, or any of his creditors, disputes the correctness of any of the claims so recorded, the objecting member must within three days, file with the secretary written specifications of the grounds of his objections, and within three days more, the secretary must deliver the same with a copy of the disputed claim to the Arbitration Committee, who proceed to consider the same and hear testimony offered by both parties, and within ten days thereafter the committee must make, sign and file with the secretary an award or decision.

The secretary then immediately records such ward in the 'Book of Decisions of the Arbitration Committee,' and also at the same time sends by a special messenger a notice of such record to each interested party, specifying date and time of such recording, and in case no appeal is taken therefrom, the award is considered final and binding upon all the parties interested.

If within five days after an award becomes final the failed member fails to pay the awarded claims, the Board of Directors declare his membership at an end, and orders his shares of stock to be sold.

When the failure of any member of the Exchange has been posted by his own act or by direction of the Supervisory Committee, the said member shall within ten days send to the Supervisory Committee a statement of his affairs. It shall then be the duty of said committee to examine each statement, and they may in their discretion procure the services of an expert accountant and charge the expense attending his services to the estate of said member.

If any member who has been posted shall omit to send to the Supervisory Committee within said ten days, the statement required by this section, or if said committee on an Examination shall be of opinion that the said member has conducted his business in a reckless and unbusiness like manner, they shall report to the Board of Directors, who may by a two-third vote declare such failed member disqualified for reinstatement.

But in case a member so failing has complied with the rules of the Exchange, and made honorable settlement with his creditors, or offered to pay them pro rata to the extent of his ability including the market value of his share of stock, he may within one year apply for reinstatement and by a two-third vote of the Directors be so reinstated.

Failures on the Cotton Exchange, the same as failures in any other speculative enterprise, come unexpectedly, and to the most worthy members. Being on the wrong side of the market, is the only explanation for many failures, while others are clearly due to a reckless disregard of rules and precedents in trade, and trying to cover a larger deal than the capital of the speculator will warrant and justify. In case of a failure, the failing member is seldom able to settle at one hundred cents on the dollar, as the shrinkage and unavailability of his assets, and the embarrassments which are thrown around one who is announced as a failed member, are such as to make almost any dividend acceptable to creditors. As to honorable settlements the New Orleans Cotton Exchange boasts of the integrity of its membership, and seldom resorts to deception, chicanery or fraud, either in the routine of business or the settlement and adjustment of the estates of insolvents.

WEATHER SUITABLE FOR DELIVERIES.

If the weather is deemed unsuitable for the delivery of cotton by any party interested in a delivery on any day, the secretary of the Exchange, at his or their request obtains the opinion thereon of three members of the Exchange (not interested in deliveries on that day) and if a majority decide that the weather is unsuitable for the delivery of cotton, the secretary then posts their certificates on the bulletin of the Exchange, dating the time of posting, which shall remain posted until a majority of the three members shall decide the weather to be suitable, when it is then taken from the bulletin and filed away, noting the time of removal. During the time this certificate is posted on the bulletin all deliveries of cotton may be suspended at the option of either party to any delivery, and any delivery suspended under this rule, shall be entitled to an extension of time—two hours more than the time the certificate was posted.

The secretary also gives a certified copy of the certificate to any member requiring it, and this copy is considered a sufficient authority for the suspension and resumption of delivery of any lot of cotton by the parties to the delivery.

PRESS SUPERVISION AND LEVEE INSPECTION.

Upon this important department of cotton commerce, the New Orleans Cotton Exchange claims a record of which they feel justly proud. Press supervision and levee inspection of cotton coming into New Orleans has been reduced to a system by the Cotton Exchange, which is considered as nearly perfect as it is possible for any system to be, and while it may not have accomplished all in levee inspection, and more especially levee protection outside the city of New Orleans, which it was hoped, or that it probably will accomplish, in the way of saving to owners of the cotton, yet it is such a great advance over the old system, or rather lack of system, with its annoyances and attending pecuniary loss, that the Cotton Exchange is highly gratified, and proud of it.

Said the assistant secretary of the Cotton Exchange:

"What we propose to do, is to see that the planter or country dealer sending cotton to the market shall *know*; that his cotton will be so taken care of that he shall suffer no loss beyond the necessary sampling. In other words, we propose to protect that cotton and every bale of it, from storm, mud, moisture and depredation.

RULES FOR LEVEE INSPECTION.

The Board of Directors shall elect annually a chief levee inspector and such number of assistants as they may deem necessary, who shall be employed by the month, and who shall hold their respective offices at the pleasure of the Board.

The chief levee inspector shall be paid a salary of two hundred dollars per month, and shall be required to keep a horse at his own expense that he may be the better able to discharge his duties, and each levee assistant inspector shall receive a salary not exceeding one hundred dollars per month.

The duties of the chief levee inspector and his assistants shall be to protect from theft all cotton on the levee, whether landed from steamers or railroads, in process of shipment, or in transit through the city, to see that cotton whilst being landed or in process of shipment, is properly cared for, protected from the weather and kept out of the mud, and they shall perform such other duties as are imposed upon them, for the more effective protection of the cotton trade of this city.

The chief levee inspector and his assistants shall keep a record of the weather, also of the condition in which cotton is delivered to the various vessels; they shall also keep a record of the condition in which cotton is taken on board, specifying whether the same was taken on board in a wet or in a dry condition, and if wet they shall specify whether the same was received wet or became so by being exposed to rain on the levee or being rolled through the mud. They shall make daily reports embodying all particulars, which reports shall be placed on file, and shall be entered up in a book to be kept for that purpose by the Superintendent of the Exchange.

They shall in all cases, where cotton is being taken on board in such condition as to render it liable to become damaged upon the voyage, or to damage other cotton by contact, notify the master of the vessel of impropriety and risk of taking cotton on board in such condition. They shall also report all cotton carried on deck by any vessel leaving the port.

Steamers landing cotton on the levee beyond the wooden wharves, shall be required to place the same upon skids, so as to prevent its coming in contact with mud or water, and it shall be the duty of the chief levee inspector and of his assistants to report all violations of this rule.

It shall be the duty of the chief levee inspector when a vessel clears at the custom-house to draw up a certificate setting forth the condition in which her cargo was taken on board, and it shall be the duty of the secretary of the Exchange to countersign such report, and to affix thereto the seal of the Exchange.

The secretary shall forward such certificate to such person or association at the port of destination, as the President or Board of Directors may direct.

It shall also be the duty of the chief levee inspector to report all vessels whose masters refuse to furnish daily reports of cotton received, or who may refuse proper facilities to the levee inspectors for the performance of their duties, and the secretary of the Exchange shall post upon the Exchange boards the names of all vessels so reported; he shall also note all such cases upon the reports forwarded to the ports of destination of such vessels.

Any one forcibly interfering with the levee inspectors while in the discharge of their duties, shall be prosecuted according to law.

In any case where cotton has been taken on board of a vessel, in a condition unfit for shipment, any shipper by said vessel shall receive, if he so requires, a special certificate from the Exchange setting forth the facts in the case, said certificate to be verified by oath or affirmation of the inspector in charge of said vessel. Shippers requiring special certificates shall pay all expenses incurred under this rule.

Each shipper of cotton shall on the first of each month pay to the treasurer of this Exchange one cent for each and every bale of cotton shipped by him during the preceding month. The amount so paid shall be kept by the treasurer as a fund out of which to defray all expenses incurred under the regulations for the protection of cotton upon the levee.

Each shipper shall report monthly the number of bales of cotton received by him and shipped without being sent to presses, all such cotton being liable to the levee inspection assessment of one (1) cent per bale,"

continued the assistant secretary of the Exchange:

"These are our rules as to levee inspection, and you will see how we rigidly guard the planter and shippers' interest as to cotton on the levee or while being shipped, and even in foreign ports, assessing only one cent per bale in return. Now let me show you how our press supervision works, but prior to that, it will be well for you to understand fully the rules governing the

SALE AND DELIVERY OF COTTON.

All cotton shall be received within seven working days from and after the day of sale, and if not received within that time, the seller shall have the right to demand payment of the approximate value of the cotton, and may, after giving due notice in writing to the buyer, proceed to have the cotton weighed, and to demand payment in accordance with such weights. In default of prompt payment, the seller shall then have the right to resell the cotton for account of the buyer.

AS TO PAYMENT.

All cotton shall be paid for upon presentation of the broker's invoice, and the broker shall deliver the same upon the day the delivery is completed, if practicable; at farthest by two o'clock P. M. on the day following.

REJECTIONS.

The buyer shall have the right to reject all seedy or falsely packed or mixed packed or re-baled cotton, unless it has been sold as such; also any cotton lower

in grade than the lowest grade represented in the seller's samples.

No other cotton shall be rejected when equal in quality to the sample by which it has been sold, if the sample has been fairly exhibited.

Since September 1, 1879, all flax bagging filled with shives, and all other bagging, which when wet stains cotton, are considered unmerchantable, and all cotton covered therewith must be re-covered with merchantable bagging at the expense of the seller.

When cotton of various grades has been sold at a uniform price, and the rejections are above the average grade of the list, the factor shall make good to the buyer the difference in value between the rejected bales and the average of the list, and where rejections are below the average of the list, the buyer shall, in like manner, make good the difference in value to the seller. All such differences to be determined by the original samples of the seller.

Any bale of cotton weighing less than three hundred pounds is deemed unmerchantable, and may be rejected by the buyer.

BANDING, AND CONDITION.

Six iron bands or ropes, not exceeding in weight twelve pounds in the aggregate, are allowed and considered sufficient for each bale of cotton. Any excess, must, at the option of the buyer, be removed from the bale and deducted from the gross weight. If a bale has less than six bands, allowance must be made to the seller, the bands to be put on by the press at the expense of the seller.

All sales of cotton unless otherwise provided for at the time of sale, shall be deemed to have been made under a guaranty of its being in a merchantable condition, and in good order for immediate shipment. Buyers shall have the right to reject any cotton delivered in bad order or in a damaged condition, unless it can be put in order upon the day the delivery of the list shall be completed, provided the vessel to which it is ordered is to sail that day; in other cases it may be delivered within the two following days.

DELIVERY, AND PRESS ROOM INSPECTION.

The delivery of cotton shall be considered as completed when it passes the scales, but the seller still has an insurable interest in it until paid for.

In like manner where payments on account are made by the buyer prior to actual delivery, he is deemed to have an insurable interest in the cotton, and may require from the seller an assignment of his policy of insurance to the extent of such payments.

When cotton is to be inspected in the press room, it shall be the duty of the inspectors to be present at the time of compressing, provided he or the buyer's classer shall have been notified of the time at which the cotton would be compressed. In case of his absence, the owner or manager of the press shall be authorized to employ an inspector at a cost not exceeding five cents per bale, to be paid by the buyer.

INFRINGEMENT CASES.

Members of the Exchange when purchasing cotton from or selling cotton to parties who are not members must stipulate that such purchase or sale shall be governed by the rules of the Exchange, including those relating to supervision and inspection.

Brokers when purchasing for parties who are not members of the Exchange, must in each instance inform the seller of that fact, and also give the name of the buyer. In event of this rule not being observed the broker shall be held responsible under the rules, for any infringment thercof that may occur.

It is the duty of the chief supervisor to report all infringements of this rule to the committee on supervision, who refers such cases to the committee on membership.

GOVERNING WEIGHERS.

The seller's weigher is not allowed to weigh any cotton for delivery without the presence of the buyers' re-weigher, unless he shall first have given notice to the buyer's re-weigher, or to the buyer's classer of his readiness to weigh the same at a time which he shall specify; should the buyer's re-weigher fail to be present at the time specified in said notice, a further delay of two hours shall be allowed, at the expiration of which time the seller's weigher may proceed with the weighing of the cotton without the presence of the buyer's re-weigher.

In all cases where wet or damp cotton is tendered for delivery and the weigher and re-weigher agree as to the proper allowance to be made for the same, the buyer's re-weigher shall have the right to demand that such cotton shall not be weighed until it becomes dry.

The chief supervisor shall test the weigher's scales, whenever in his own opinion it shall be necessary to do so.

All bagging not absolutely necessary to cover and protect the contents of the bales in a proper manner, shall be deemed unnecessary, and shall be removed

from the bales before they are weighed, or a fair and equitable deduction shall be made for the weight of such bagging; and all such unnecessary bagging when removed to be the property of the seller. The usual side pieces, which should each consist of no more than a single half width of bagging, running the length of the bale, will not be considered unnecessary bagging.

Two pounds per bale tare shall be allowed for salvage.

FRAUDULENT PACKS, AND CLAIMS.

After cotton has been examined, received and passed upon by the broker or other agent or the buyer, no claim shall be made upon the seller except for fraudulent or false packing, and the allowance provided for in Rule 28.

Falsely or fraudently packed cotton shall be defined as follows—such bales as may contain any foreign substances, water packed bales, or bales containing damaged cotton in the interior without any indication of such damage on the exterior of the bale; also such bales as are plated, *i. e.*, composed of good cotton upon the exterior and decidedly inferior cotton in the interior of the bales in such manner as not to be detected without opening the same.

When claims are made, they shall be in writing, giving the shipping marks or numbers, also the planter's and all other legible marks, and a separate certificate shall be given for each bale, except where two or more bales bear the same planter's marks. The certificate shall also state the particulars of the fraudulent or false packing, and shall be verified by oath or affirmation.

All claims made out in conformity with the foregoing regulations shall be deemed *prima facia* valid in favor of the claimant, and can only be defeated by a decision of the committee on arbitration or of the Board of Appeals of this Exchange.

Cotton bought and held here, if found to be falsely or fraudulently packed, shall be returned within 100 days from date of sale to the seller, who shall pay for the same by the weight, and at the market value of cotton of the grade shown by the original sample hole, at the time it shall be so returned.

"You see by these rules how closely and stringently this Exchange guards all transactions of its members, and the care taken to make this market, one of absolutely square, honest dealing. You also see a little of the labor imposed upon the assistant superintendent and chief supervisor. But this you will see more clearly from the rules concerning press supervision. You have doubtless noticed the large yards occupied by our compress companies for storage of baled and and loose cotton, and also for facilitating the handling of cotton in the amounts sold in this market. We are now ready to take up the subject of

PRESS SUPERVISION.

The Board of Directors elect annually during the month of October, a chief supervisor and such number of assistants as they may deem necessary, to be employed by the month, and who hold their respective offices at the pleasure of the Board.

The president of the Exchange is also allowed to make temporary appointments and suspensions.

It is the duty of the chief supervisor to visit all the presses, to overlook his assistants, and exercise such supervision over matters relating to the cotton trade as may be necessary; he must report all infractions of the rules and regulations of the Exchange to the president, and perform such other duties as may be required of him by these regulations or by a resolution of the Board. He is required to keep a horse, that he may be the better able to discharge the duties assigned to him.

Under the direction of the committee on supervision he makes all assignments of the assistant supervisors for duty at the various presses, and transfers such assistants from place to place whenever the committee deem such changes are necessary. He reports at each monthly meeting of the board the quantity of loose cotton made in and the numbers of bales received and delivered by each press.

The assistant supervisors must see that all loose cotton is gathered up and weighed and must then make a daily report to the chief supervisor of the quantity weighed and stored at each press. They must also weigh all samples carried away by the factors', samplers' and brokers' classers, giving a certificate in each case, if required, and keeping a record of the same, showing all details. They are to see that all regulations established by the Exchange are properly enforced, and must report all infractions of the same to the chief supervisor.

SALARIES AND WEIGHT OF SAMPLES.

The chief supervisor is paid a salary of four hundred dollars per month, which includes the expense attending the keeping of his horse. Each assistant supervisor is paid a salary not exceeding one hundred dollars per month.

The weight of samples taken out by the factor's

sampler must not exceed six ounces per bale, and such samples must not be removed from the press until weighed by the assistant supervisor, who shall keep a record of the weight of same, and if required by the factor, shall furnish a certificate of this weight to the sampler.

The weight of samples taken out by the broker's classer must not exceed six ounces per bale, and such samples must not be removed from the press until weighed by the assistant supervisor, who shall keep a record of the weight of same, and if required, shall furnish the classer with a certificate stating the weight. Cutting of bands on bales for the purpose of sampling is prohibited, and the six ounces allowed for a sample from each bale, must be drawn in one sample.

The buyer's inspector must exhibit a certificate showing his authority to inspect the cotton, and must also replace all cotton taken from the bales in boring and inspecting. Should he fail to do so, it is gathered up, weighed and stored with the other loose cotton, but in no event shall it be removed from the press.

LOOSE COTTON.

All top samples and other loose cotton necessarily taken from the bales by the seller's sampler or the broker's classer, and all other loose cotton gathered up in the presses, shall be weighed and stored in the press, and the supervisor shall report any sampler, classer or any other person who may make more loose cotton than is necessary.

It is also the duty of the chief or assistant supervisors to report to the buyer or broker any classer who takes his samples to a junk shop, or any other shop or store, before taking them to the office of the buyer or broker.

The chief and assistant supervisors shall have sole charge of all loose cotton of whatever description, made in the presses, to be kept by them until there is a sufficient quantity to make one or more bales, when they shall have it baled up at such place as the owner or owners thereof may designate.

After being baled up, it shall be returned to the press and stored, subject to the order of the owner or owners thereof.

All such cotton shall be weighed before leaving the press to be baled up, and shall be re-weighed when returned to the press.

Any buyer requiring loose cotton for the purpose of making up types, shall deliver to the supervisor an order signed by himself or his regularly constituted attorney. He will then be allowed to take from the bales after they shall have been weighed, the quantity required. The supervisor shall weigh the cotton so taken and report the same to the buyer.

SUPERVISION FEE.

Each party storing cotton, shall, on the first of each month, pay four cents per bale on all cotton received and stored by him during the preceding month, the amounts so paid to be kept by the treasurer as a fund out of which to pay all expenses of supervision, including the cost of labor for gathering up the loose cotton. All ship marked, small numbered, or other cotton sampled for resale in the market, shall, upon resale, pay the regular supervision fee of four cents per bale. All forwarding cotton sampled in presses shall be subject to this rule. When cotton delivered in a press by planter's marks is hauled to another press and there sampled, it shall, on supervision, be subject to an additional charge of two cents per bale, or one-half of the regular supervision fee, provided that should the owner or owners thereof turn over to the Exchange the loose made from such cotton, no such additional charge for supervision shall be made.

The chief of the supervision department shall report direct to the chairman of the committee on supervision, upon all matters connected with his department outside of his regular duties.

In all cases of deliveries of cotton on Sunday, factors shall be required to pay the extra expenses for supervision and gathering loose, occasioned thereby.

The presses shall furnish free of charge suitable storage room for loose cotton, and shall render such aid and assistance as may be necessary to enable the supervisors to perform the duties assigned them.

It shall be the duty of the owners and managers of presses to report to the President of the Exchange all such violations of these rules and regulations as shall come under their personal observation.

COMMISSIONS AND BROKERAGE.

The following is established as the regular tariff of commissions and brokerage for buying and selling in the New Orleans Cotton Exchange, in the absence of any specific contract:

Commission for buying,	$2\frac{1}{2}$ per cent.
Commission for selling,	$2\frac{1}{2}$ per cent.

The above rates apply to all purchases or sales of cotton on the spar or to arrive.

"You now have," said the assistant secretary, "the rules we have found it necessary to adopt. For their practical working let me refer you to the report of the

supervision committee, which reads as follows:

"The annual report of the Chief Supervisor shows that the loose cotton made from samples, trimmings, waste and by cotton pickeries from damaged bales, and from all sources except the re-ginning the seed by the oil mills, is less than seven-tenths of one per cent, the average of factor's and buyer's samples being five ounces per bale."

"These are significant facts, indicating as they do, that while not stinting in the requirements necessary to a fair and proper exhibition of cotton for sale or the examination thereof when purchased, it is the custom of the trade of this port to give to cotton a more careful handling compared with its character and bulk than is afforded in many markets to other articles of merchandise.

The organization of the two systems of supervision and levee inspection is such that New Orleans can warrant full protection to cotton received here in good order from the time of its arrival until it is finally shipped abroad, and it now needs but the co-operation of those most interested, the planters and country merchants, to see that their merchandise is properly protected and cared for until it is placed in the hands of the factors.

Our presses handle during the year over one million bales in the way of receipts, and a like amount in deliveries. As the supervision covers both receipt and delivery, the work of the department equals a single supervision of over two and a quarter million bales. The business of the inspection department embraces in a single year the inspection of nearly one million and a half bales, including the cargoes of nearly five hundred vessels to foreign and coastwise ports. One of the most gratifying, as well as prominent results of levee inspection, is the almost total absence of complaints from abroad, of country damage to cotton shipped from and via New Orleans. Few masters of vessels will now allow shipments to be taken abroad concerning which there is the slighest doubt.

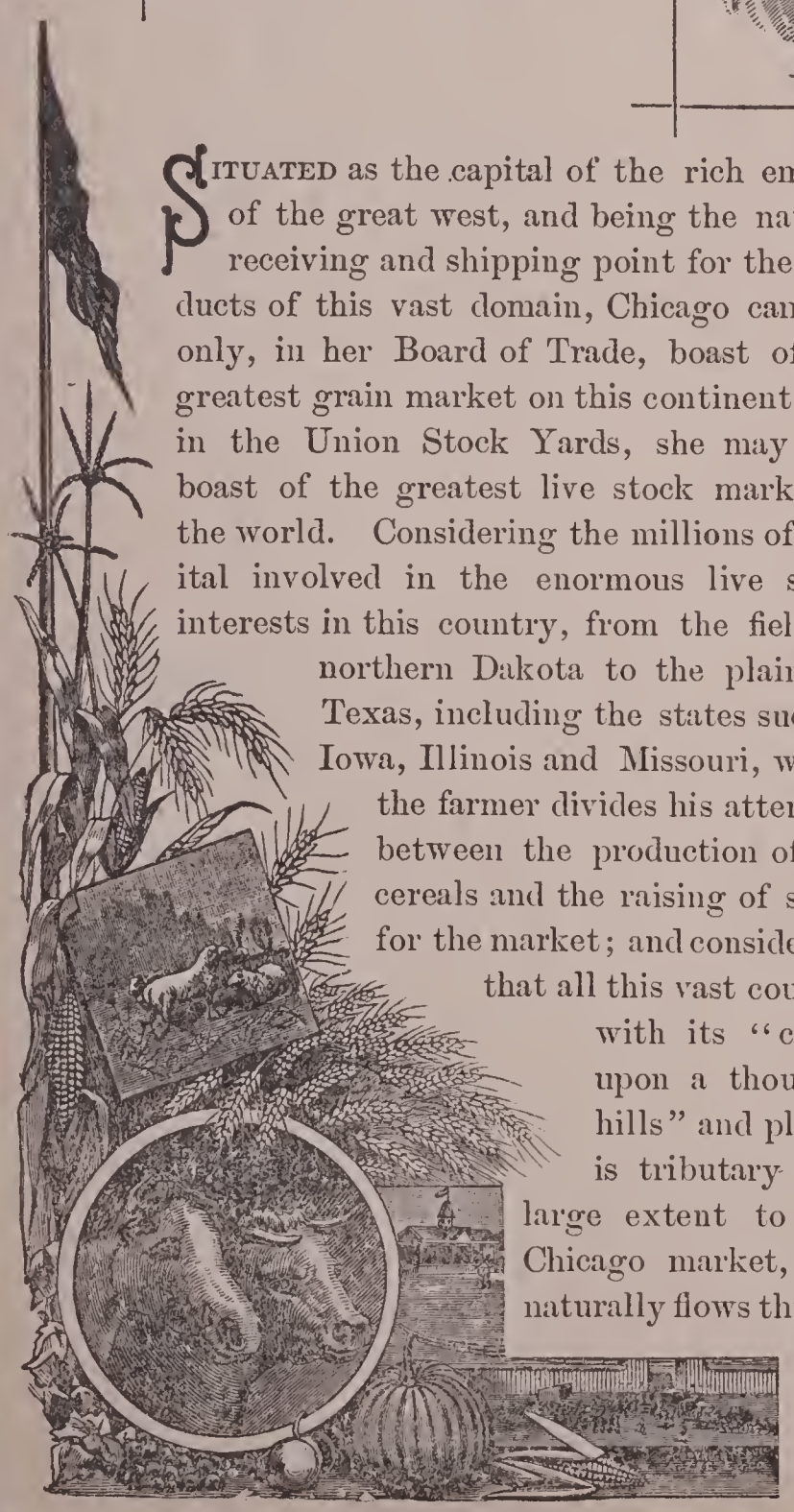
Furthermore, it has grown almost into a custom for any dispute or difference relative to the condition of such cotton, especially when it is for account of our local shippers, to refer the matter to the chief of the levee inspection department."

Such, in brief, is the method of handling the great cotton interests of the south, at the central market of the cotton fields, located in the city, which has been long the acknowledged metropolis of the southern states—New Orleans. For the characteristic courtesy of New Orleans business men the authors acknowledge their indebtedness to the extent of a large portion of the facts contained in this chapter, on that great and growing institution, the New Orleans Cotton Exchange.

THE Union Stock Yards OF CHICAGO,

AND THE LIVE STOCK TRADE.

SITUATED as the capital of the rich empire of the great west, and being the natural receiving and shipping point for the products of this vast domain, Chicago can not only, in her Board of Trade, boast of the greatest grain market on this continent, but in the Union Stock Yards, she may also boast of the greatest live stock market in the world. Considering the millions of capital involved in the enormous live stock interests in this country, from the fields of northern Dakota to the plains of Texas, including the states such as Iowa, Illinois and Missouri, where the farmer divides his attention between the production of the cereals and the raising of stock for the market; and considering that all this vast country with its "cattle upon a thousand hills" and plains, is tributary to a large extent to the Chicago market, and naturally flows thither as it changes hands from the raiser, and we may imagine, in an imperfect way, the enormity of the live stock trade at this great center.



Situated just beyond the corporate limits of the city of Chicago, and covering a space of 350 acres with pens, sheds and buildings for the receipt, handling and shipment of the vast hordes of each day; giving employment, directly and indirectly to over thirty thousand persons, and being the center of a city of its own creation and support, with stores, hotel, bank, and daily newspaper, the Union Stock Yards is a place of no small interest to even the most indifferent or casual observer.

During the year 1882, the aggregate value of the live stock received at this great market, approached very nearly two hundred millions of dollars, averaging over six hundred thousand dollars per day. Almost all the states and territories, west, southwest and northwest contribute their quota to make up this vast aggregate. The corn fed stock comes principally from Illinois, Iowa, Missouri, Kansas, Nebraska, Minnesota and Wisconsin; the grass cattle, from Texas, Kansas, Colorado, Montana, Wyoming, Utah, Oregon, and even the British possessions send in their quota to swell the great volume of business.

All of the numerous railroads centering into Chicago have branch tracks provided, connecting with the Union Stock Yards, for delivering or receiving of live stock to or from the market.

ORGANIZATION AND GROWTH.

The "Union Stock Yards and Transit Company" is the name of the incorporated company which owns and controls this vast property and business. The charter was granted the company by the legislature of Illinois on February 13, 1865, and the original capital stock of the company was placed at $1,000,000, divided into shares of $100 each. Previous to the establishment of the Union Stock Yards, the live stock trade of Chicago had been carried on at various places, in yards located at different points about the city, thus scattering the trade and causing great inconvenience to shippers and buyers, as well as to the railroads in receiving and delivering stock. The object in consolidating the yards and centralizing the live stock business, was to give the railroads greater facilities for unloading their cars of cattle, hogs and sheep, brought from the various points of the interior, and to those lines shipping east, better advantages for handling their trade, and by having the live stock all in one location, owners and buyers would be brought nearer together and the benefits of a large market accrue to all alike.

GRAND ENTRANCE TO THE YARDS.

At the head of the corporation of the Union Stock Yards, stands the president, John B. Sherman, a man of great executive ability and enterprise, and it is due largely to his powerful mind, that the Union Stock Yards has grown to be the great and busy mart that it now is. Officered with a complete and competent corps of men, from president, vice-president, secretary and treasurer, down to the yard men and feeders, the organization of the company is as perfect as that of a regiment of soldiers, each man having duties to perform and being held to a strict accountability for their performance. The company assumes the payment of the freight due to the various railroads as they bring in their consignments of stock; attends to the care, feeding and counting of the stock from the time it is unloaded from the cars, and does the weighing when sold. For all this a large force of men is required, and a thorough system and organization is necessary, and these are not found wanting.

The growth of the Union Stock Yards from its establishment in 1865 until the present time, has been marvelous and almost beyond comprehension. In 1866, the first year after the establishment of the yards, the receipts of cattle amounted to 393,007 head, while in the year 1882 the receipts of cattle alone aggregated 1,582,530 head, an excess over the receipts of 1866 by 1,189,523. The number of hogs received in 1866 were 1,696,738, but in 1882 the number had grown to the enormous figure of 5,817,504, in the short space of seventeen years. The value of the live stock received in 1882 amounted to nearly five times that of 1866.

Making due allowance for the growth and development of the western country tributary to this market, and for the consequent increased production of live stock, it is still true that the Chicago live stock market has been a great drawing and centralizing force, building up its enormous business from year to year by attracting to it, the products which in times past flowed into other channels. As the attention of capitalists has been drawn toward investing money in live stock raising on the great plains and prairies of the west, for the past few years as never before, we may confidently predict that this great market has not yet reached its culminating point of magnitude.

THE YARDS.

The construction of the great Union Stock Yards was begun in June, 1865, and they were thrown open for the transaction of business on the 25th of the following December. The capacity of the yards is sufficient to receive and dispose of 25,000 head of cattle daily, besides 100,000 head of hogs, 25,000 sheep, and stabling for 1,500 horses, making a total capacity for over 150,000 head. In addition to this there are about 300 shutes and pens for the transferring of stock to and from the cars, with numerous barns for the storage

of hay and corn. There are, in the yards, thirty-two miles of under drainage, eight miles of streets and alleys, four miles of water troughs in the various pens, ten miles of feed troughs, 2,300 gates, 1,500 open stock pens for cattle, and 800 covered pens for hogs and sheep. Many of the principal streets and thoroughfares through the yards are paved with stone or Macadam, and the other streets and alleys with cinders and gravel, while the pens and yards are bottomed with three-inch plank, rendering them clean and dry from the under sewerage. There are fifty miles of switch and side tracks in and about the yards for the accommodation of the different railroad lines in bringing in the stock, and transferring it to the various packing houses, or loading and shipping it to the eastern seaboard. Fifteen hundred cars of live stock can be unloaded and taken care of daily at the yards.

There are five artesian wells on the premises, which supply an abundance of good water, and this is carried by means of underground pipes throughout the yards, into every pen. There are hydrants scattered all over the yards, for use in case of fire, there being thousands of feet of hose pipe constantly on hand for any emergency. A police force is constantly on duty throughout the premises to preserve order and protect property. The yards are opened at six o'clock in the morning and the gates are closed at six o'clock in the evening, after which time no one, except the regular watchman and those having passes, are allowed to enter.

A STAMPEDE OF TEXAS CATTLE.

The yards are divided into sections or divisions, and these are designated by letters of the alphabet, such as "Div. A," "Div. C," or "Div. D." These divisions are divided into blocks numbered from 1 to 30, more or less; these blocks embrace all the pens in the division, whether for yarding cattle, hogs or sheep, and the pens in each block are numbered from 1 to 30 or 40, as the case may be, so that any pen in the whole area of hundreds of acres can be located at once, first by the division, then by the number of the block, and then the number of the pen. Over each division is a superintendent and yard master, under whom is placed the necessary working force for yarding, feeding, weighing, etc. This force of men numbers about seven hundred in all, and the monthly pay-roll of the company foots up to about $36,000.

In addition to the divisions before explained, there are several shipping departments for the accommodation of the through railway lines that ship live stock of all kinds from the Union Stock Yards to the different Atlantic seaboard markets. Eight roads have shutes in these departments for loading cattle, hogs and sheep for shipment east, and a sufficient number of blocks and pens are provided in near proximity to the shutes to accommodate all the stock that may be delayed temporarily for want of cars, or for other reason. Outside of the Stock Yards proper there is the department for dead animals, a large number of these being handled in the course of each year. These are all promptly loaded on cars, and are taken to the Union Rendering establishment, which is situated well out in the country, a number of miles east of the stock yards.

A large proportion of the cattle arrivals during the season of warm weather are Texan—rough, flat-ribbed, long-legged, Spanish-looking subjects, narrow in the back, open in the loin, often of a yellow color, with immense horns, weighing alive or "on the hoof," 900 to 1200 lbs. each. These cattle are all branded permanently and deeply, the brand being made with a hot iron, when the animal is a calf, and sometimes repeated annually. This mode of branding is a system adopted years ago, as a means of identifying animals straying widely over the prairies. The bulk of these cattle are reared on the great plains and ranches of western Texas, and driven thence up through Arkansas and

the Indian Nation to Colorado, where after months of good feeding, they are forwarded to Chicago, for a market, by the Union or Southern Pacific railroads.

THE COMPANY.

Standing as a supervising and regulating head over the immense establishment is the company, or corporation of the Union Stock Yards. This company, owning as it does the vast property, prescribes the rules, and is the executive and directing force in the market. Should stock be shipped into the market which is not consigned to any commission firm, the Stock Yards company assumes control of it upon its arrival, sees that it is properly sold, and remits the proceeds to the shipper, wherever he may be. The Union Stock Yards company assumes and promptly pays all freight charges to the different railroads that bring stock, provided that the same is in good fair condition when it reaches the stock yards. The live stock commission men, who now sell about all the stock that arrives at the stock yards, never expect to settle these charges until after the stock is finally disposed of, and it often happens that pretty large lots of stock may have to remain in the stock yards several days before it can be sold, so that the Union Stock Yards company is all the time heavily in advance to the country shippers for freight and other charges against the live stock brought in. It takes from $200,000 to $300,000 a week to pay charges of this kind to all the different railways that bring stock from the country to the Union Stock Yards. As much as $100,000 has been paid to the Chicago, Burlington and Quincy railroad company in a single week for freight, etc., on stock that this single road has brought in.

The company keeps complete and extensive records of the receipts and shipments of stock, and is thus able to furnish any statistical information which shippers and dealers, or others interested, may desire.

THE EXCHANGE BUILDING.

As one approaches the Union Stock Yards, he sees first, the large five-story brick hotel, known as the Transit House, built and owned by the Stock Yards company, and patronized chiefly by those interested in the business at the yards, and by drovers and shippers. Further on, and just after passing the grand entrance to the yards, situated near the center of the vast field of pens and yards, looms up the Exchange Building. This is a brick structure 60 feet wide and 240 feet long, two stories high, and is located within the yards in order to be convenient and easy of access by those who transact business thereabout. The Exchange building was constructed with all possible care to accommodate stock men and the live stock interests. Here the shippers, packers, commission men and buyers meet, and within this building a vast volume of business is transacted every day. In this building, the raiser or shipper of stock from Dakota, Kansas or Texas, meets, through the medium of the commission merchant, the buyer representing the eastern cities or Europe. In this building the checks and drafts are drawn which transfer the title of almost a million dollars of live stock, from one party to the other every day. Telegraph offices located in the building furnish reports of the condition of the grain and live stock markets at various points of the country, together with any other information which would tend to modify or fluctuate the market. Bulletins are posted up, furnishing the hourly market reports and daily receipts and shipments, and telegrams from the Board of Trade in the city are posted here showing the conditions of the grain market.

In the Exchange building the commission men and also the buyers all have their offices. Here are also the offices of the superintendent, secretary and treasurer of the company, and its general business office for clerks and book-keepers, about a dozen men being employed constantly in the latter capacity, to record all the transactions of the vast business centering here, which the company exercises an oversight and supervision throughout, and is responsible for. The eastern and western live stock freight collections for all the railroads, are settled here, as well as the yard and feed charges, which annually foot up into the millions. There is also in the building, a restaurant and a barber shop. In a wing or annex to the building is the National bank, which supplies the funds to carry on this gigantic enterprise.

THE COMMISSION MEN.

A necessary element in the machine work of the live stock trade is the commission man. He is to the shipper what the attorney is to his client—a counsel, advocate, and experienced and skillful agent. Without the commission man, the shipper would be at the mercy of sharks and sharpers who would take every advantage of his inexperience and ignorance in the market, and would impose upon him by all manner of tricks and devices, so that he would verily believe that he had fallen into the hands of the Philistines. The result of this would be the destruction of the market, and it may then be said that the commission man is essential to the live stock trade. To him all live stock is con-

signed by the shipper, and the disposition of it is a matter of his judgment, skill and honor. It is essential to the shipper that he place his property thus in the hands of only an honorable and trustworthy commission firm, who will secure him every advantage in the market, and make prompt and reliable returns. It is also essential in many cases that the commission merchant have ample capital at his command, and is prepared to make advances to the shipper of perhaps one-half or two-thirds the value of the cattle before they are sold. The buyer in the country market, after having shipped a consignment of stock to his commission merchant in Chicago, may thus, by getting an advance of a portion of the value of his shipment, be enabled to continue his purchases without interruption. Considering that the large commission firms who have numerous buyers in various parts of the country, may be advancing money to many of them at the same time, the amount of floating capital or actual cash required to conduct a large commission business is considerable, and easily runs into the hundreds of thousands.

THE EXCHANGE BUILDING.

There are over seventy-five commission firms in the Chicago live stock market, all having their offices in the Exchange building. These firms are each under bonds to the Union Stock Yards company in large amounts, something like $25,000, for the safe and proper performance of all obligations and the settlement of all items, such as freight, yardage and feed bills, to the Stock Yards company. Each commission firm employs one or more helpers for duty about the yards in handling stock, and these added to the force of 700 yard men employed by the company, make nearly 1,000 men scattered throughout pens, streets and alleys.

There is, among the legitimate commission men, no such thing as speculation. No "longs," "shorts" or "straddles," and no buying or selling for future delivery. No "margins," no "puts" or "calls" ever intrude their hydra heads into this live stock market.

The "bulls" and "bears" are there, however, as they are and must be in every market, although not always denominated by those names. The commission man is always the "bull," for it is his business to toss the market, stiffen prices, and get the best figure for the stock of his consignor that is possible. On the other hand, the buyers are always "bears," and are always aiming to depress values and buy at the lowest price possible, for the packers or eastern markets which they represent. These two opposing forces meet daily, and although not in excited or violent combat or vociferation, as on the Board of Trade, yet the bargainings and bickerings are all gone through with, which finally result in a trade.

The receipts or arrivals of stock are disposed of each day, unless for sufficient reason any portion may be held over until the next morning, in anticipation of a more favorable market. The stock is sold on its merits, at the market price for the day, and the commission man receives his compensation for selling without regard to what the stock brings. There is, consequently, among the careful and well established commission firms, no such thing as the "gigantic failures," which characterize speculation. The commission man performs his service and receives his compensation, together with any advances, freight, etc., which he may have made, and is thus always on the safe side.

THE BUYERS.

There are a large number of live stock buyers employed regularly at the stock yards. All the heavy packing establishments employ buyers to purchase their hogs for them, and all the shippers of hogs do the same; all the heavy cattle dealers have their buyers employed to make their purchases, the parties that slaughter cattle and ship beef in the carcass, and the

canners have their buyers. Some heavy eastern establishments have sheep buyers employed to purchase sheep for them through a large portion of each year. These buyers all make a specialty of buying one partibular class of stock, especially in the cattle department. The cattle bought for shipment in carcass, for export, or for canning, are each entirely different, one from the other, in grade and quality. As a common rule, the city butchers buy their own stock, cattle, hogs and sheep, and there are a large number of them in daily attendance for the purpose. There are all the time a large number of transient buyers at the stock yards generally for the purpose of purchasing stock cattle or feeders. The great bulk of those engaged as buyers are resident, and these buyers, taken all together, bear a most important part in the daily working of the whole general business of the Union Stock Yards. The commission men sometimes receive orders to buy for persons or firms at a distance, but this is not common. There is also in the market a class of speculators who buy and sell for the purpose of profiting by the rise in the market. These speculators have their offices in the Exchange building, pay cash for what they buy, and sell when and where they can obtain the best price. They buy largely, crippled animals, which they sell "on the street," or to the resident butchers to be slaughtered at once. In case they see a bargain in Texas steers or fat cattle, or are inclined to believe the market to-morrow will be better than to-day, they seize the opportunity, buy the lot, and hold it until the next day, when the animals are sold and slaughtered or shipped eastward.

The demands in the east usually control the Chicago market, and cause its fluctuations. The buyers receive their instructions from the establishments for which they buy, as to what they shall pay for stock, each day, and it is the business of the commission merchant and sellers to obtain the best price they can.

THE BANK.

Where so much business is transacted, and so much value passing constantly from buyers to sellers, it became necessary at the first to establish a banking institution for the safe depositing of capital within easy and ready access when wanted. The business at the stock yards is largely done by checks, comparatively little actual money being used. This is a great convenience to the dealers, besides being much safer. The freight, yardage and feed bills are paid by the commission firm's check; the buyer gives his check for the stock, and the commission man draws his check to the shipper for the proceeds after deducting his commission, and advances, or if the shipper is not in attendance with the stock in the market, the commission man draws his check for the proceeds of the sale and with it buys a draft at the bank, which he remits to the shipper wherever he may be.

The aggregate operations of the Union Stock Yards National Bank average about $800,000 daily, but under certain conditions the business of the bank has amounted to $1,000,000 in a day. This bank was brought into existence as a necessity for facilitating the general live stock business of the Union Stock Yards, and it constantly keeps a large amount of money employed in doing this. To give an instance which will illustrate the matter, a drover reaches the stock yards on a given day with ten or twenty car loads of hogs, consigned to some commission firm, who sells them upon arrival to one of the large packing firms. A ticket is obtained from the office of the Union Stock Yards company showing that all freight and other charges have been settled upon such hogs, and the bank promptly advances the amount due from the packer for such stock, and the drover receives his pay at once and leaves for home, while the bank gets its check for the advance made from the city office of the packer, in one or two days, as the case may be, and the same kind of rule holds with some of the heavier kind of transactions in the cattle trade. The bank also facilitates the shipment of live stock from the Union Stock Yards to the different eastern markets by discounting drafts drawn against it, for which interest and discount is charged. The Union Stock Yards company keeps about $250,000 regularly employed in paying to the different railroads freight and other charges on stock that is constantly arriving at the stock yards, and this amount lies in the Union Stock Yards National Bank on deposit, subject to check.

The bank also proves a great and valuable agent for collecting drafts drawn by country buyers against their commission merchant. Thus, for instance, a buyer in Indiana, Iowa, or the far west, having purchased a certain number of car loads of cattle, or hogs, loads them on board the cars, and consigns them to the commission firm of Jones & Brown, for sale at the Union Stock Yards of Chicago. The shipper then receives a Railroad Receipt or Bill of Lading from the station agent at the place of shipment, stating that so many cars of cattle or hogs have been received by him, and consigned to the commission firm of Jones & Brown, for account of the shipper, and to his *order*. The shipper now draws a sight draft on Jones & Brown for one-half to three-

fourths the value of the stock shipped, and attaches to this his Bill of Lading, properly indorsed over to his country bank. The bank readily advances the money on the draft, taking the Bill of Lading as security. This arrangement gives the bank or holder of the Bill of Lading, *when consigned to the order of the shipper*, and by him properly indorsed, absolute control of the property until the draft is paid. The draft, with its Bill of Lading attached, is forwarded to Chicago, and reaches the Union Stock Yards National Bank, which collects it from Jones & Brown, and charges a certain fee for doing the business.

DAILY ROUTINE.

Each railroad has its particular place and track from which to unload or load the live stock it brings or receives, and beside the track is provided a platform long enough to accommodate the longest stock train, while numerous schutes open to receive the pent-up animals from the cars. Arrived at its platform the yard master of the division takes the shipping bills from the conductor, and with his helpers unloads the train and yards the stock, keeping in record a strict official account of all the stock taken from each car, the number of the car, the number of the schutes into which it was unloaded, and the number of block and pen in which it was yarded, the name of the owner and of the consignee.

When the commission man is ready to put a consignment of stock on the market he looks for the kind of a buyer that deals regularly in the kind and quality of stock he has to offer; if he has export cattle—the best quality the market ever affords—he looks up the buyers of export cattle and works among them until he effects a sale; if he has cattle suitable for slaughtering and shipping in the carcass, he works among the buyers who make a specialty of buying this kind of cattle, and the same as to canning, common butchering, or stock cattle. The same is true in regard to the selling of hogs and sheep; there are shipping hogs, packing hogs and bacon hogs, each being a separate grade. Sheep are generally of two grades, shipping and common butchering.

As soon as a sale of stock has been effected by the commission merchant, it is driven on the scales and counted and weighed to the purchaser, by the weighmaster employed for the purpose by the Stock Yards company. The weighman then issues a ticket to the commisssion firm selling the stock. This ticket fixes the quantity as an element in the sale, and upon it are based the calculations which eventually result in drawing the checks. This ticket is really the only written contract, or evidence of a contract, between seller and buyer, and on the back of the ticket is written down the price, by the commission man, and a computation is made of the total transaction. The following is a form of the ticket:

All Stock is held subject to Freight and Charges.

DIVISION C.

Martin Bros.

John Smith.

76 Cattle, *85,210* Lbs.

Hogs, "

Sheep, "

Date, *9-13,* 18 .

J. W. Mott, Weigh Master.

Meager as the written evidences of the transaction are, they are usually sufficient for all purposes among the commission merchants and the buyers, who are personally known to each other. It is regarded as damaging to the reputation of a buyer or seller to "back out" of a trade that has been once fairly made, although verbal.

"What do you ask for these cattle?"

"Five and a quarter."

"All right, I'll take them."

This constitutes the only language necessary to a sale of thousands of dollars worth of stock. But if, after looking the pen over again with only a few moments intervening, the buyer should say, "I won't take them," he has damaged his standing and reputation throughout the yards, and this course persisted in, finally ends in routing him from the market.

After the seller receives the weighman's ticket, he sends it to the office of the Stock Yards company, and from them receives a duplicate, in the following form:

Union Stock Yard and Transit Co.

9-13, 18 .

Martin Bros., To *John Smith.*

76 *Cattle,* *85,210*

Hogs,

Sheep,

No Charges. **GEO. T. WILLIAMS, Secretary.**

Per ***Roath.***

On the back of this duplicate scale ticket he figures up the amount of the sale, and then delivers the ticket to the other party to the contract—the buyer—who in turn draws his check for the amount of the deal.

Upon receiving the check of the buyer, the commission firm which sells the stock, issues an order on the Union Stock Yards company for its delivery, and by this, it passes out of the possession of the seller into that of the purchaser. The following is the form of the order:

MARTIN BROS.

Chicago, 9-13, *1883.*

To Union Stock Yard and Transit Co.

Please deliver to John Smith,

76 *Cattle,* ..... *Hogs,* ..... *Sheep,*

Block 17, *Pen,* 10 *Division* A, *Scale* 5.

MARTIN BROS.

Per Jas. Henery.

The commission merchant then proceeds to make up his accounts. He sends to the office of the Stock Yards company and ascertains the freight, yardage and feed bill incurred on the stock just sold, and with these items, he makes out for his country shipper, an Account Sales, giving all the particulars of the transaction, as in the form below.

In case any advances have been made to the shipper on account of the stock before it was received, the amount will appear on the Account Sales opposite "Cash advances," and this, together with the charges for freight, yardage, etc., will be deducted from the total sale, leaving the balance due the shipper. On the books of the commission merchant, some of his shippers keep an open account, and draw drafts against the shipment before it reaches the market. These drafts usually come in one or two days in advance of the stock, and are paid and charged up to the account of the shipper. When the stock has been sold, the

FORM OF AN ACCOUNT SALES.

JOHN H. MARTIN,
L. T. MARTIN.

UNION STOCK YARDS.

Chicago, Ill., Sept. 13, 18 ..

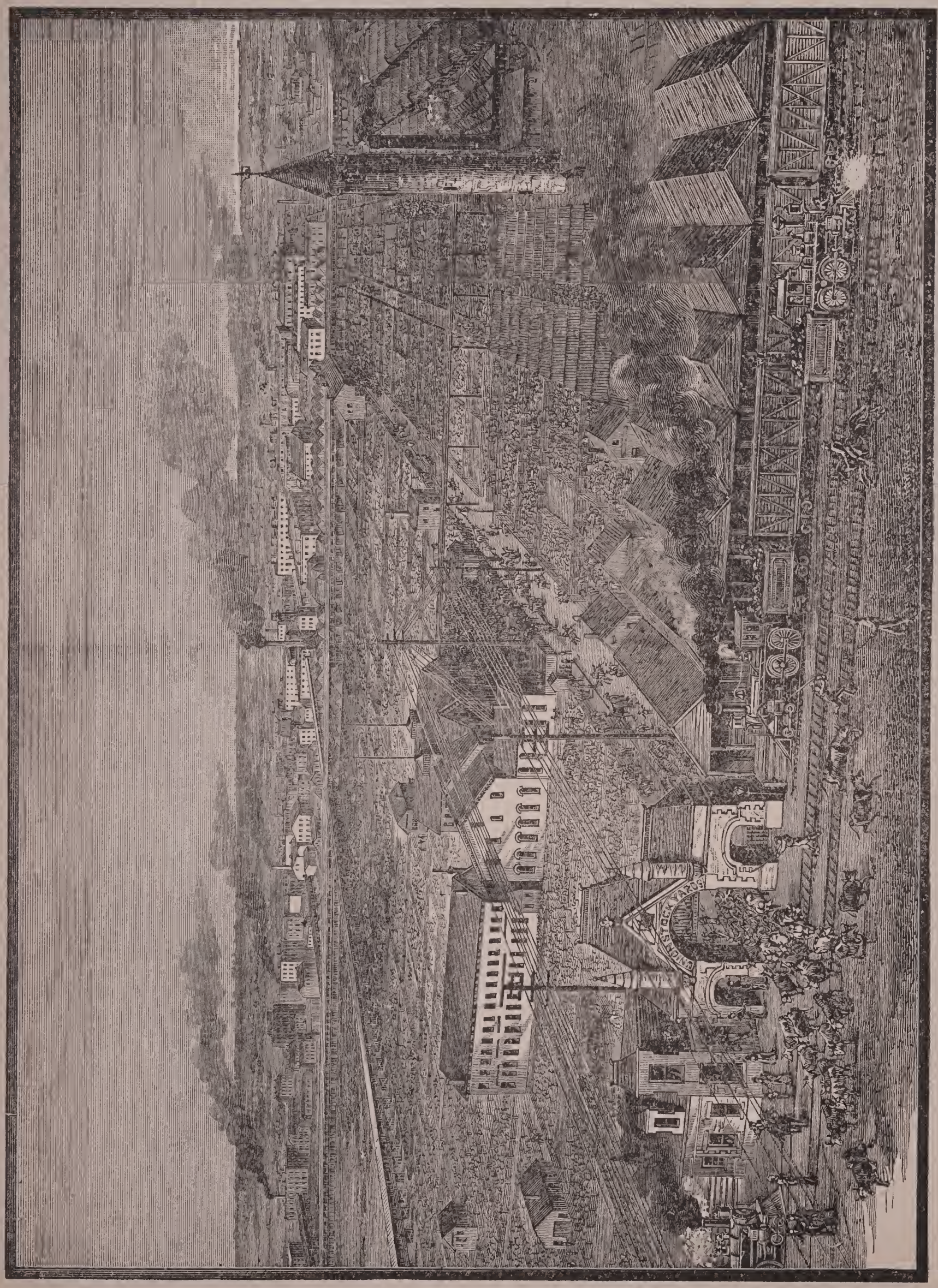
MARTIN BROS.,

Live Stock Commission Brokers,

EXCHANGE BUILDING.

Sold on Acc't of John Brown.

CAR NOS.	NO.	STOCK.	WEIGHT.	OFF.	PRICE.	AMOUNT.			
12876	76	Cattle.	85210		5.00	4260	50	4260	50
2472									
4873									
15261									
		CHARGES:							
		CASH ADVANCES.							
		Freight, (including feed on road),				260	50		
		Yardage,				19			
		Hay,				6			
		Commission,				38		323	50
E. & O. E.		Net Proceeds.						3937	00



BIRD'S-EYE VIEW OF THE UNION STOCK YARDS OF CHICAGO.

residue, after deducting the "cash advances," charges, etc., is carried to the credit of the shipper, subject to his future drafts. Shippers having an open account usually keep a balance with their commission merchants to their credit, to cover any loss which may occur from a decline in the market, and an unfortunate sale.

In case no advances are made, or no account is kept, and the shipper is not in the market himself, he usually instructs his commission merchant how to remit the net proceeds of the sale. This may be by mailing a check, by forwarding New York exchange, or by sending the currency by express, at the risk and expense of the shipper.

The commission merchants settle usually twice a week with the Union Stock Yards company for all dues, such as freight advanced, yardage, feed, etc., by passing over a check for the amount.

CHARGES.

The charges by the commission men for selling, are fifty cents per head for cattle, and six dollars per car for hogs and sheep. There are from forty to sixty head of hogs in a car load, and eighteen to twenty head of cattle. All cattle, sheep and hogs are sold by live weight; from one to a score or more are driven on to the scales. The seller usually tries to get his stock fed and watered first. Officers of the Society for the Prevention of Cruelty to Animals are constantly in attendance to report upon and prevent cases of cruelty or neglect.

The stock yards charges are twenty-five cents per head for cattle, and eight cents for hogs and sheep as yardage, and this is always the same, no matter whether the stock is sold in an hour after its arrival or remains in the yards a month. This includes the watering of the stock. The feed is an extra charge, and from the famine prices demanded, one would think we lived in the Egypt of olden times. The price for hay is fixed at twenty-five dollars per ton, and for ear corn one dollar per bushel. During the short crop years of 1881 and 1882, the price of ear corn at these yards was *one dollar and twenty-five cents* per bushel. The Stock Yards company supplies all the feed to the stock at all times, and, in fact, has a monopoly on it, and allows no feed used except such as is snpplied from the barns and cribs of the corporation. No wonder the shares of stock of this soulless corporation have sold at enormous premiums, and doubtful if they can be had in the market even then.

ABOUT CATTLE.

The quality of the stock cattle, hogs and sheep that reaches the stock yards varies, of course, from the highest to the lowest grades, and there is a considerable amount of stock all the time arriving that ought to be prohibited from sale in any consuming market for sanitary reasons alone; there is also a large amount of stock of all kinds received as good in quality as could be found in the world.

Adjacent to these stock yards there are four large establishments where, in each, upward of a thousand cattle are killed and dressed daily. Carcasses, sides or quarters, are distributed to the retail butchers of the city and vicinity. The canning and packing establishments take 700 to 1,000 carcasses, and several refrigerator car loads are dispatched daily to New York, Boston and intermediate places. Every week, about 1,000 carcasses are forwarded to England by steamers from Boston and New York, being sent in cloths in the winter season, and in refrigerator cars and chambers on board ship in the summer; and so carefully cooled and managed is this Chicago slaughtered meat, that it is eaten in Liverpool, Manchester and London a fortnight later in as good condition as that killed only a day or two previously in those cities. For the different departments of the trade, various animals are used; only the superior grades, weighing, when hung up, 700 to 750 lbs., are sent to the seaboard and across the ocean. For the canning business, four-year-old Texan and Colorado bullocks, weighing net 450 to 500 lbs., are chiefly used. The price per lb. of the dressed carcasses is about double that given for the live animal.

Communicating with a large yard, where the cattle are herded, is a series of ten pens, into each of which a couple of bullocks are driven. From a platform overhead, the operator dextrously drops his pole, armed with a steel blade, which severs the spinal cord just between the first and second vertebra; the first thrust almost invariably takes effect; the animal drops dead instantly. The quivering movements seen have been ignorantly supposed to evidence suffering, but are purely involuntary muscular movements. So soon as the victim drops, he is fixed by the horns to a revolving chain passing along the floor, worked by an engine, set in motion by the movement of a lever, and dragging the carcass out of the slaughtering pen some twenty feet to the great shed, where he is dressed. The large vessels of the neck are cut to allow thorough bleeding; the horns are promptly removed by a circular saw, worked by the engine and set in motion as required by a spring on the floor; the hide is taken off; the trees

are applied in the usual manner and the carcass strung up. Eighteen cattle are killed and dressed in fifteen minutes. Seventy-five are sometimes turned into the cooling chambers in an hour. Without laborious lifting or any heavy manual labor, the carcasses from the sheds where they are dressed, are swung along on wheels running on stout iron rods overhead, and ranged in the cooling chamber.

The tongues are forwarded to the packing houses for preserving; the internal organs, carefully cleaned, are converted into sausage casings; the tallow is assorted, the best of it goes for oleomargarine, the second qualities are rendered into barrels for soap and candle making; in several large vats, heads, bones and offal are digested and made into fertilizers; the blood is preserved for the same purpose; the hides find buyers close by, who are ready to take them green from the block, doing the curing and trimming themselves; the discount claimed for all branded hides is about ten per cent. So promptly is everything done, so handy are the arrangements, so systematic the supervision, that the killing and dressing is profitably done at less than fifty cents per head.

The beef canning business has grown to large dimensions in this market within the last ten years, and great amounts of meat are shipped to Europe in this manner. In some of these immense establishments from 90,000 to 100,000 lbs. of cooked beef are turned out daily, the sizes of the cans being uniform—two, four, six and fourteen lbs each, nearly one-half being of the smallest size. About fifteen machines are at work, cutting and blocking the tins, which are nearly square in form.

All bone and gristle are removed; *two* lbs. of beef cut from the carcass are required to yield *one* lb. of canned meat; a large quantity is also put up for market as corned beef. It is partially cooked in baths, of which about 100 are usually in operation, each holding six barrels of beef. In suitable pieces it is transferred to the tin cans, which are wheeled to another set of baths, in which they remain from three to seven hours, and are gradually cooked without any loss of the natural juices or aroma. Air escapes through a puncture in the lid. Removed from the baths, a dozen men are constantly occupied soldering this aperture in the tin. A cleaning machine and several alkaline baths effectually cleans the cans from grease and economize the labor of about 500 girls, by whom the cans are labeled and packed. Samples are taken daily into the test room, and examination made for leakage, or for evidences of imperfect keeping.

The canned corned beef is in large demand. The fourteen lb. packages are chiefly taken by retail grocers, restaurants and hotels. The hams are pickled for thirty days, and are packed in barrels, containing 220 lbs. The rounds, generally boned, are salted, sometimes smoked, and besides a liberal home consumption, are largely used in the lumbering and mining regions. The tallow is carefully rendered, and finds a ready market at home and on the seaboard. The marrow from the bones is canned, much of it going to England, where it is used as a substitute for butter.

HOGS, AND WHERE THEY GO.

The regular winter packing season begins November 1st, and closes on the last day of February following. The arrivals of live hogs at the yards are the largest through November and December. The receipts as reported every week day morning vary from 25,000 to 60,000 head, except on Saturday, when they fall off to from 8,000 to 10,000—the last day of the week being the lightest "run" of any. Values fluctuate, being governed by prices of product on the Board of Trade, by the weather, by the receipts, and oftentimes by combinations among the buyers. The packers and shippers have their agents at work, soon as business opens, at six o'clock in the morning, and as a rule, the desirable lots have all been bought by twelve M., though there are days when the market is much depressed, and prices very weak, when drovers refuse to meet buyers, and many lots are carried over to next day's market, but very generally to the disadvantage of the holder. To sell on the day of arrival, is the most successful way for the drover, take the year through, as the experience of many will confirm.

The best grades of live hogs received are heavy, fat, smooth, small boned, and averaging from 300 to 400 lbs. gross. These are called "Philadelphias," and are bought by shippers to the market of the same name. The Boston buyers have their pick, and fancy a style of animal fully equal to the above, though they will take coarser grades, if obliged to. The largest buyer for Massachusetts owns 300 double-decked stock cars of his own, enough for ten trains, and the hogs purchased and shipped nearly every day by his resident agent go directly through to Brighton, Mass., stopping off once *en route*, in Canada, to rest and feed.

A lighter class of hogs will satisfy the buyers for the largest city in the United States; they weigh from 125 to 225 lbs. gross, and are called "Yorkers."

Then we have buyers for the English houses, who manufacture principally bacon, and cuts adapted to the export trade. They want a light-weight, small-boned

animal. This is shown from the average net weight of hogs packed by firms who offer very little product for sale in this market, but do an export trade almost exclusively. The weight of the hogs packed by ten such establishments, varied from 163 to 192 lbs. each, or an average of 173⅓ lbs. net.

The Chicago packers get their supply, along with others, and buy mixed packing hogs, and sometimes animals of all grades. Even the hog buyers can sometimes say "Finally, my brethren," for the last grades he knows anything about are the *skips* and *culls*. Our only competitor for this class is Cleveland, Ohio. The range in price of live hogs on the same kind of a market, is about one cent per lb. gross, from the lowest in grade to the best.

The shipments of live hogs east by rail vary from 24,000 to 30,000 per week, from the 1st of March to about the 15th of September, but not so many in winter.

During the season of 1880–'81, or from November 1, 1880, to November 1, 1881, which included summer and winter killing for those twelve months, the total number of hogs slaughtered at the Union Stock Yards and vicinity footed up 5,693,569 head. And such are the complete facilities for doing the work at the large packing houses, an abundance of ice and the most thorough refrigerator system known, that of this vast number of hogs, 150,000 more were slaughtered in the summer months than during the regular winter packing season, and the product fully cured and preserved, and made ready for shipment to any part of the world. The net weight of hogs packed in this market, from November 1, 1870, to March 1, 1882, for the winter packing, averaged 221 lbs. The summer packing begins March 1st, and ends November 1st, being a period of eight months, or twice the length of the winter season. The average net weight of hogs packed during the summer for the past eight years, was 189 lbs. To pack live hogs the year through on a large scale is a modern science. It would have been regarded as an impossibility a quarter of a century ago.

The following table shows the average of prices in the Chicago market for articles named during the winter packing season for six years:

ARTICLES.	Season 1882-83.	Season 1881-82.	Season 1880-81.	Season 1879-80.	Season 1878-79.	Season 1877-78.
Mess Pork.....	$17.52	$16.95	$13.32½	$11.86	$ 8.06¼	$11.40
P. S. Lard.....	10.94	11.02	8.80	7.16	5.92	7.58
D. S. Shoulders...	6 60	6.02	4.30	4.02¼	2.91	4.16
Short Ribs	9.33	8.79½	6.95	6.20	4.02	5.80
Short Clear.....	9.58	9.00	7.13	6.37	4.13¾	5.94
S. P. Hams.....	10.56	9.75	8.15	7.97½	6.25	7.75
Live Hogs.....	6 52	6.40	5.05½	4.37	3.06½	4.14

HIGHEST AND LOWEST PRICES FOR SIXTEEN YEARS.

The following table shows the highest and lowest prices reached on articles named for sixteen years past:

ARTICLES.	Date—Highest.	Price.	Date—Lowest.	Price.
Live Hogs...	Sept. 1875, March 1876.	$10.00	December, 1878.....	$2.45¼
Mess Pork....	June and Aug., 1879...	31.00	December, 1878.....	6.02½
Lard	February, 1869.....	20.75	December, 1878..	5.32½
Short Ribs....	October, 1869.....	17.75	December, 1878.....	3.35
Shoulders.....	October, 1875.....	9.25	January, 1879.....	2.37½
S. P. Hams....	October, 1875.....	14.50	Dec. 1878, Jan., 1879...	5.00

CHRONOLOGICAL.

The following chronological record is taken from the 17th annual report of the secretary of the Union Stock Yards and Transit Company:

The largest receipts of stock in a day were:

Cattle, November 15, 1882.....	12,076
Calves, September 28, 1881.....	1,428
Hogs, November 25, 1879.....	64,643
Sheep, February 8, 1882.....	6,701
Horses, October 5, 1874.....	460
Cars, January 11, 1882.....	1,490

The largest receipts of stock in one week were:

Cattle, week ending October 21, 1882.....	45,286
Calves, week ending August 27, 1881.....	3,366
Hogs, week ending November 20, 1880.....	300,488
Sheep, week ending January 21, 1882.....	22,639
Horses, week ending March 26, 1881.....	1,125
Cars, week ending December 16, 1882.....	6,089

The largest receipts of stock in one month were:

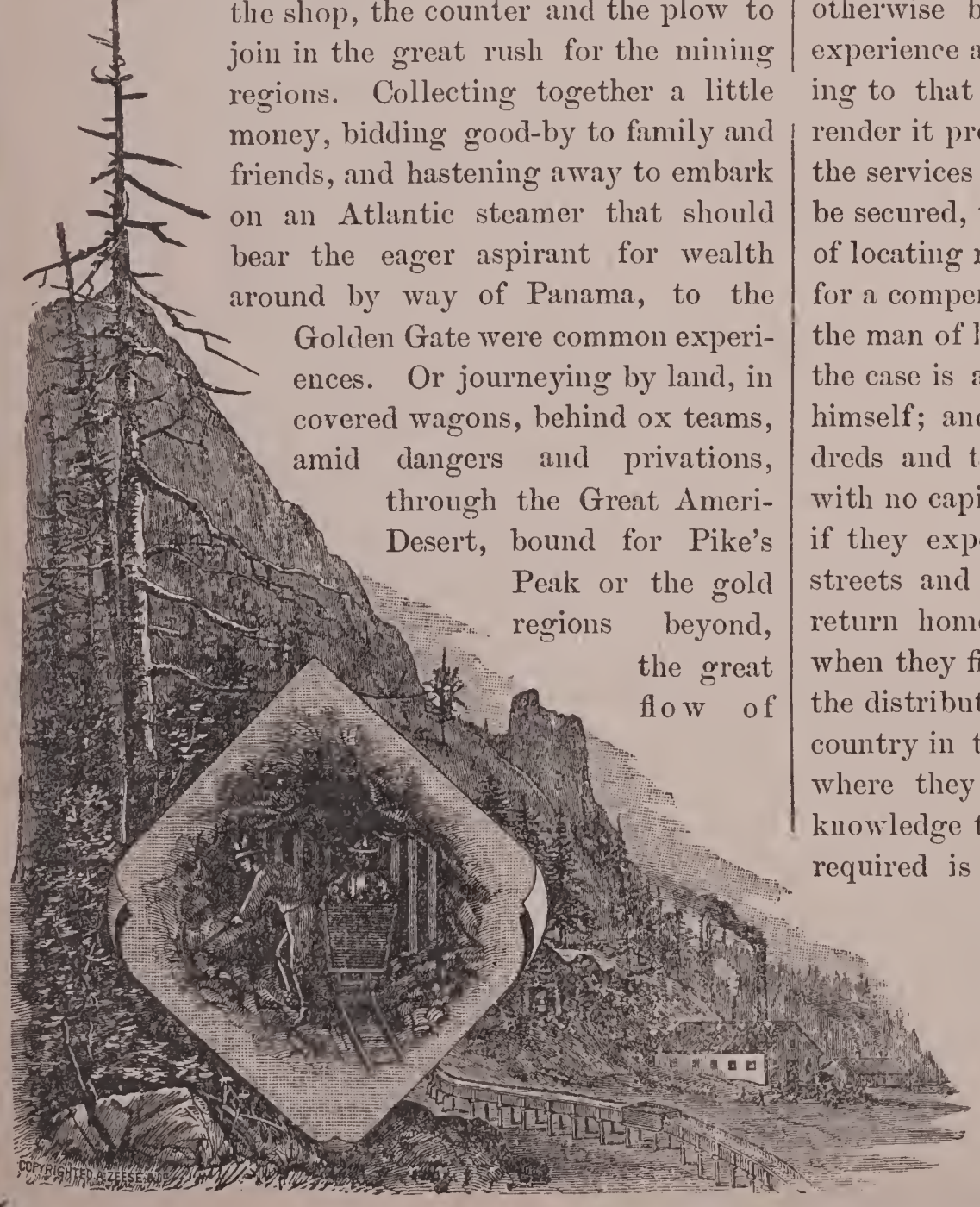
Cattle, October, 1882.....	175,549
Calves, August, 1881.....	11,604
Hogs, November, 1880.....	1,111,997
Sheep, March, 1882.....	69,303
Horses, March, 1873.....	4,253
Cars, December, 1882.....	21,653

The largest receipts of stock in one year were:

Cattle, 1882.....	1,582,538
Calves, 1881.....	48,948
Hogs, 1880.....	7,059,355
Sheep, 1882.....	528,887
Horses, 1873.....	20,289
Cars, 1881.....	187,191

Mining.

It is within the memory of men still living to recall the periods of excitement and enthusiasm occasioned by the discovery of gold or silver, and the sudden opening of a mining region in the United States. Memorable among such periods was the year 1849, when the gold mines of California were first discovered. Exaggerated reports of the extent and richness of the fields were circulated all over the states, and men left the shop, the counter and the plow to join in the great rush for the mining regions. Collecting together a little money, bidding good-by to family and friends, and hastening away to embark on an Atlantic steamer that should bear the eager aspirant for wealth around by way of Panama, to the Golden Gate were common experiences. Or journeying by land, in covered wagons, behind ox teams, amid dangers and privations, through the Great American Desert, bound for Pike's Peak or the gold regions beyond, the great flow of eager treasure seekers, their vision filled with gold and wealth, rolled on.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There is, to the mind, a fascination in gathering the precious metals from the earth, enhanced, perhaps, by the uncertainty of the quantity, and now and then sudden realization of rich returns. It shall be the purpose in the few pages following to give some practical hints and information for the benefit of those who purpose entering the mining fields, and who would otherwise be compelled to spend, perhaps, years of experience and considerable sums of money in attaining to that knowledge of the business which would render it profitable. By the man of means, or wealth, the services of an experienced miner or prospector may be secured, who, having made a study and occupation of locating mines and distinguishing ores, will assume, for a compensation, all that responsibility; but with the man of limited means, entering the mining regions, the case is altogether different, and he must rely on himself; and his best capital will be knowledge. Hundreds and thousands of ignorant men, ill-advised and with no capital, are constantly going to the mines, as if they expected to pick up nuggets of gold in the streets and roadways, only to be disappointed, and return home, sadder and poorer, if not wiser, than when they first set out. Nature has been so liberal in the distribution of valuable minerals, that there is no country in the world, no state in this great republic, where they cannot be found if the seeker has the knowledge to search intelligently—and the knowledge required is not profound—it can be acquired and applied by any one. Some of the most valuable mines in the world have been discovered by persons who would rank as utterly wanting in what is considered education, but they had learned the signs with which nature has stamped her treasures, and when accident brought

them to their attention, they were able to take possession of them with knowledge of their value.

ORES AND METALS.

There are some two hundred and fifty mineral species known in the United States, but less than a third of this number are of value to the business world. It is very rarely that nature gives us a metal in pure form, but fortunately she has given them certain characteristics by which they may be recognized, and by knowing them, a farmer may be led to a valuable ore deposit on his farm, or a traveler may find a hint in an insignificant stone that will lead him to the means of adding to his own fortune and enriching a locality that was ignorant of its own resources.

Among the substances classed as elementary by chemists, there are at present about fifty that are known as metals. New discoveries, however, are frequently making changes in this list of elements. In this list of metals there are only fourteen considered of importance in the business world, viz: Aluminum, antimony, bismuth, cobalt, copper, gold, iron, lead, mercury, nickel, platinum, silver, tin and zinc. Of these the ones that ever exist in the pure metallic state in any considerable quantity are gold, copper and tin. Silver is also sometimes found in a very pure state, but not frequently in paying quantities—it is looked upon as a curiosity. All of these and all the others are generally found combined with other substances to form *ores*. Often several metals will be combined in the same ore with one metal giving the principal characteristic. The taking of these ores from the earth by digging is known as mining; the separation of the metal from the other components of the ore, is the art of metallurgy.

PROSPECTING.

In places where ores are known to exist, as in "the back-bone of the continent" (the Rocky mountains in North America and the Cordillera of South America), there is a class of men who make a business of hunting for valuable minerals. In this country they are known as prospectors, in South America they are called mineros. These men spend their whole time in wandering about the mountains in search of signs of ore. If successful, they have something to sell, and endeavor to find capital to open up their new mine. They carry with them provisions, and camp out, changing their quarters with their success. If good specimens of free gold in placer or pocket is found, they stay as long as the supplies hold out, or if unsuccessful they keep moving, wandering into the most remote recesses of the mountains, searching the water courses and the hidden crevices of the rocks. The ores of the precious metals are found in veins of varying size and form—sometimes in thin horizontal sheets between strata of rock, but generally in veins that make an angle with the horizon, as if the crust of the earth had been cracked by some mighty force thrusting upward, and while standing open, the fissures thus formed had been filled by the metallic deposit.

When they are well defined the ore-bearing veins are inclosed in rock to which is given the name of hanging wall and foot wall. Between the ore and the walls is generally a thin layer of clay to which is given the name of gouge, or selvage. Wherever a vein shows itself on the surface of the earth it is called the outcrop, and the ore deposit is generally made prominent from the fact that the rock is harder than the ore, or *vice versa*, and the elements acting on the softer one brings the other into prominence by a sharp line of outcropping ore if the rock has been worn away, or a marked depression if the reverse. These outcroppings or surface indications, tell the experienced prospector at a glance that they are ore deposits.

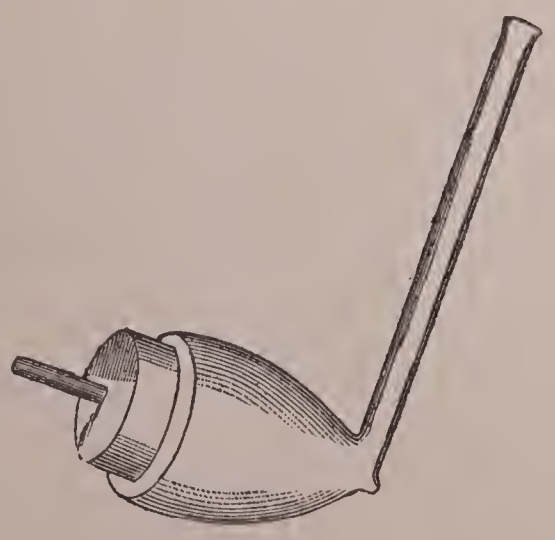
It often happens that a stream, in cutting a ravine, will carry down pieces of an ore vein that crops out in its bed; these pieces, picked up by the prospector, will give him the hint that the stream, in its rushing flood-time, has brought them from some point higher up, and he will climb the ravine, carefully examining every foot of the bed of the stream, and the sides of the ravine for the vein of ore. This plan should always be adopted in the mountains, the bed of every streamlet examined with care for specimens, and occasionally the sand and mud washed for free metals. The prospector carries with him a pan or basin for the purpose of testing the mud from the bottom of the stream for free metals. The method of doing this is extremely simple. He selects a place where the stream, in its turning, makes an eddy, with a little stretch of backwater; here, if the water had carried anything heavy in its current, there would have been a check to its momentum in the short level, and the heavy substance would sink to the bottom. He scoops into his basin some of the sand and mud, and then fills it up with water; then he stirs up the mud and pours out a portion of the muddy water, careful not to disturb the heavier particles that sink again to the bottom; then he refills the pan with clear water and repeats the operation. This he does again and again, until the water is no longer made muddy, and there is left in the bottom a spoonful or

two of something that he must examine very carefully for gold or platinum or precious stones. If he finds gold he will be certain that the stream has brought it from some point higher up, and there he must seek the parent vein.

It often happens that a prospector will find in the pan a collection of shiny particles that will make his heart beat faster for a minute, until close inspection shows him that it is only glittering and worthless mica. The particles of mica are so attractive, so bright and golden, that the novice will hardly be convinced that they are not gold in fact. The prospector, if experienced, will take a particle of the substance on the blade of his knife, and, pressing it with the thumb nail, its character will be shown. Iron pyrites will also deceive. When acquaintance is first made with them they have the appearance of noble metal, but are only a combination of iron and sulphur. We suppose one prospector to be searching only for gold and silver, and in his rambles he has discovered something that he thinks is an ore of the precious metals. How is he to know whether it is or not? How can he prove that it holds in combination one or both of these metals? How can he tell what percentage of metal it holds, and whether it will pay to work it, or is only of value to sell to some "tenderfoot?"

HOW TO EXAMINE A MINERAL.

Every prospector should acquaint himself with the use of the blow-pipe. This little instrument is a small tube bent at right angles and with a fine nozzle at the end of the shorter arm. It is used to inject a current of air into the center of the flame of a lamp or candle.



The flame is instantly changed into a miniature blast furnace, and all the phenomena of the furnace can be reproduced with this tiny instrument. With an ordinary clay pipe for material, the prospector can provide himself with a serviceable instrument with which he can perform all the operations necessary to determine the character of a mineral. In order to change a clay pipe into a blow-pipe, a piece of the stem about an inch long is broken off to make the jet; a cork of the right size, or piece of wood shaped to fit the opening of the bowl of the pipe is then taken and a hole bored through it of a size to admit the piece of stem broken from the pipe. The cork or plug of wood thus fitted is then put in the pipe and we have a combination like the accompanying drawing.

With this instrument there are produced two different results, oxidation and reduction, according as the end of the jet is held against the side of the flame of the candle or lamp, or in the center of it. By one a metal is changed to an oxide; by the other, with the aid of a proper flux, an ore is changed into a metal, or rather, the metal is separated from the other substances mixed with it, and is made visible by taking its proper metallic form.

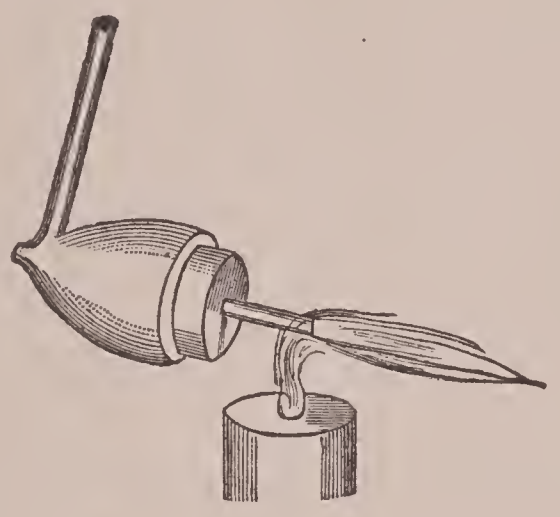
A small vial of carbonate of soda mixed with a minute quantity of the cyanide of potassium, will be the only flux absolutely necessary. The pure carbonate of soda will do quite well alone if it is found inconvenient to procure the mixture, but the cyanide with the carbonate of soda is found to give quicker results. The prospector must remember, however, that the cyanide is a deadly poison, and if he carries it must be extremely careful not to produce on himself the bad effects of the poison by swallowing a portion, or inhaling very freely the fumes arising from it.

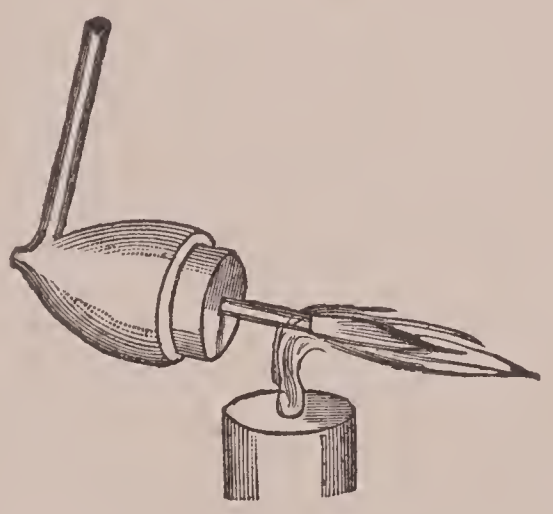
The next requisite will be a piece of charcoal to make the test on, and this will not be difficult to procure unless the prospector finds himself in a woodless country, destitute not only of trees, but of shrubs or grass enough to make a fire.

We have said that two results could be produced by the blow-pipe, and the accompanying drawings will illustrate clearly just how it must be applied to the flame to produce the right effect. In the first illustration (shown on following page) it will be seen that the mouth of the jet is placed just at the side of the flame, the result is a long yellow flame giving a high degree of heat. A substance placed just within the point of this flame is subjected to this great heat, while, at the same time, the air has access to it, and under these conditions the oxygen of the air will greedily seize upon any metallic compound, and change its constitution into what is known as an *oxide*.

In the second illustration it will be seen that the mouth of the jet is placed in the center of the flame and gives a different appearance to the blast produced;

within the long yellow envelope there is a well-defined blue flame, cone-shaped and sharp-pointed. This is called the reducing flame. The substance to be submitted to its action is so held that it will be covered by this inner cone of blue flame; the heat is more intense, and the outer envelope protects it from the air, and under these conditions its character is changed, the flux with which the ore is mixed seizes upon the bases and carries them away into the pores of the charcoal, leaving the metal as a smooth globule on the surface of the charcoal.





In order to test a mineral it is finely powdered, a small portion is taken and mixed with an equal quantity of the soda flux, the mixture to form a mass about as large as a small pea; a shallow depression is scooped in the surface of a piece of charcoal and the mixture placed in it; then it is carefully subjected to the action of the reducing flame of the blow-pipe. In most of the ores with which we are to deal, when thus treated, the mass will fuse, effervesce, and the most of it disappear in the pores of the charcoal, and there will be left only the metal on the surface. There are other metals besides gold and silver that will give this reaction; very often these metals will be found in combination with each other and with others, as, copper, lead, nickel, iron, etc., but it will not be necessary for the prospector to go into the mysteries of metallurgy; he can determine the percentage of noble metal in his specimen, and thus, its value as an ore of silver or gold.

The mineralogist has observed another curious thing about minerals and has named it streak. If we take an ore and scratch a line on its surface with a nail or knife, the line thus made or the powder formed in making it will be of a different color from the ore; this is streak, and is so characteristic that in works on mineralogy the streak is always given among the other qualities that distinguish the different minerals, and by which they are recognized.

SILVER MINERALS.

The principal silver minerals are known to science by the following names. We will give their familiar titles as they are particularly described. The composition of each mineral is given with the scientific name:

1. Native Silver.
2. Amalgam: Silver and mercury.
3. Argentite: Silver and sulphur.
4. Proustite: Silver, sulphur and arsenic.
5. Pyrargyrite: Silver, sulphur and antimony.
6. Stephanite: Silver, sulphur and antimony.
7. Polybasite: Silver, copper, sulphur, antimony and arsenic.
8 Cerargyrite: Silver and chlorine.
9. Bromyrite: Silver and bromine.
10. Embolite: Silver, bromine and chlorine.
11. Iodyrite: Silver and iodine.
12. Carbonates.

These are the minerals richest in silver, and that compose silver ores. There are other minerals that contain silver in company with other metals, but in which the other metals are in the largest proportion, and the silver is extracted as a by product, as in the familiar Galena, and in several ores of copper, etc.

These minerals are all known to exist in the United States, but some of them are rare, or are found in veins composed mostly of another ore; but as specimens of any of them are liable to be found on the surface, the prospector should know what he is handling, and we will describe them in their order as written above.

Native silver exhibits all the properties of the reduced metal, and is often alloyed with gold or copper.

Amalgam is a rare mineral. Its color is silvery-white and its streak the same. If rubbed on a piece of copper it leaves a silvery luster. If a piece of the mineral is laid on charcoal and subjected to the reducing flame, the mercury will be volatilized or driven off in vapor, and the silver left as a globule smaller than the original piece put on the charcoal.

Agentite is called, also, silver glance, or vitreous silver. This is a very valuable ore; it is found in lumps, plates and threads. Its color is a blackish lead gray, sometimes deep iron black, with very little luster

on the natural surface, but if broken, the fracture has bright luster. The streak is the same as the color and shining. It can be cut like lead, and if held in the flame of a candle will melt without the aid of the blow-pipe, giving off a smell of sulphur. In the oxidizing flame it is roasted, and in the reducing flame gives a metallic globule. This ore yields eighty-seven per cent of metal and ranks as the most important in the list.

Proustite is a light red silver ore. This ore is of a cochineal red, streak the same as color; a splinter of it held up to the light will show that it is almost, but not quite translucent, that it allows light to pass through it like smoked glass; heated in the oxidizing flame it gives off arsenical fumes that smell like garlic.

Pyrargyrite is known by the different names of ruby silver, black silver, and dark red silver ore. Its color is black or very dark red, streak is cochineal red. This is a well known and valuable ore, yielding sixty per cent of silver. Heated on charcoal it gives off white fumes of antimony; in the reducing flame with soda it gives a bead of metal. The ore is found in crystals and masses. It has metallic luster, is brittle, and easily cut with a knife. This is one of the most desirable and sought-for minerals.

THE MINING CAMP.

Stephanite is known as brittle silver ore, black silver ore, brittle silver glance. It is a combination of silver, sulphur and antimony, similar to the preceding, but containing a larger percentage of silver, and, in consequence, is a still more valuable ore. Its color is black and its streak the same. It has a metallic luster; heated on charcoal, it gives off fumes of antimony and sulphur, and with soda, in the reducing flame, gives a bead of metal. This rich ore has been the source of most of the wealth of the noted Comstock lode. It is abundant in Nevada and Idaho, in Mexico and Peru, and will probably be found in other localities in this country.

Polybasite is not a common ore, but contains a large percentage of silver in combination with copper, antimony, sulphur and arsenic. It is a modified form of the preceding ore. Its color and streak are iron black.

Cerargyrite, called horn silver, or chloride of silver, is a valuable ore. Its name describes its consistency, which is that of horn, or rather more like wax. When perfectly pure it is colorless, but is generally white, gray, or grayish green. Its streak is colorless and shining. A pure specimen will turn brown after exposure to the light. It has a resinous luster, is quite soft, and cuts like wax. It will fuse in the flame of a candle, giving off at the same time acrid fumes that provoke coughing if inhaled. On charcoal it is easily reduced. If rubbed with a piece of moistened iron, the iron becomes coated with a thin film of metallic silver. This ore yields over seventy per cent of metal; it is found in various places in the west and in South America.

Bromyrite, or bromite, is known also as plata verde; its color varies from bright yellow to grass green. It is a rare mineral, occasionally found in mines, generally with the chloride just described.

Embolite is a mineral composed of the chloride and bromide, sometimes found in large masses. Its color is olive and grayish green. A valuable ore in South America.

Iodyrite is a rare mineral. Its color is yellow or yellowish green, streak yellow. Heated on charcoal

with the blow-pipe it fuses into a globule of silver, while the iodine is driven off in vapor that tinges the flame a beautiful violet color.

Selbite, carbonate of silver. The Spaniards called this plata azue (blue silver). It was not known, except in the mines of Mexico, until a few years ago. The discovery of it in Colorado, in great quantities, caused much excitement among miners and capitalists, and led to the building of the city of Leadville. Its color varies from blue gray to black, it is very soft and easily reduces before the blow-pipe. It is a very valuable ore.

These are the ores of silver mineral, and the principal sources of the metal. As we have already said, the metal is found combined with others and may contain a paying amount of silver without being a silver ore. To test an ore for silver that will not yield a globule of metal, the mineral must be finely powdered and placed in some receptacle, as a cup or bottle, where it can be covered with nitric acid. After the acid has acted upon the substance for an hour or so, pour it carefully into another bottle without disturbing the substance left undissolved by the acid, if there is any left. Then add some water to the acid—about as much water as there is acid—and you will have a clear liquid. Now add to this liquid a solution of common salt, and if there is any silver dissolved in the acid, it will appear as a white, curdy precipitate, that will turn brown after exposure to the light. If, instead of a solution of salt, we add a few drops of hydrochloric acid, we will detect the faintest trace of silver. To test whether the precipitate is silver or lead, pour over it boiling water which will dissolve the lead, but not the silver. Ammonia will dissolve the silver.

GOLD AND SILVER MINERALS.

Gold is the most precious commodity in the world of business. As a metal it is widely distributed over the globe. Although so widely distributed that there is no country in which it cannot be found in some form, yet nature has so cunningly covered it up, and combined it with other things in order to hide it, that it requires the most skillful and the most laborious exertions of man to acquire it and prepare it for the uses of commerce. The principal gold minerals are:

1. Native gold: Pure metal.
2. Gold amalgam: Gold and mercury.
3. Sylvanite: Gold, silver and tellurium.
4. Nagyagite: Gold, silver, copper, tellurium, sulphur, lead
5. Petzite: Gold, silver, lead, tellurium, iron, sulphur.
6. Calaverite: Gold and tellurium.
7. Porpezite: Gold, silver and palladium.
8. Rhodium: Gold and rhodium.

These minerals, with varying proportions of gold, are worked in different parts of the world, but the greater quantity is found as native gold—the pure metal—and requires no chemical transformation to fit it for use. If it exists in the soil, the prospector, by using the pan, and washing carefully, will find it in small scales, or plates. Its color of gold yellow is closely imitated by mica, but the plates of gold are malleable, that is, can be pounded and flattened, and mica is not. It can be fused on charcoal at a high heat without the use of a flux. If its presence is suspected in quartz, the piece of quartz to be examined should be broken, and the fresh face thus exposed, looked over carefully with a lens. If it is in large quantity, the magnifying glass will show the grains of gold embedded in the quartz. This is not a final test, however, as gold is found in paying quantities in rock that does not give an outward sign of it, and in this case it can be taken out by a process of which nature gives a hint in the list of gold-bearing minerals given above, viz.: gold amalgam. The metal, mercury, has the singular property of seizing on gold and silver whenever it finds them, and as it can be separated readily from them again by the action of heat, it is made use of in determining their presence in certain minerals after they have been properly prepared for the action of the mercury. In order to test for gold, the quartz in which it cannot be seen but is suspected, the rock is first pounded up fine and sifted; a certain quantity of the sand thus obtained is washed in the pan, allowing the heavier particles to sink, and the rest to float away; this is repeated until a manageable quantity is secured in which we may be certain that the gold will be found if the quartz held it. This is then amalgamated by mixing with it about half the quantity of clean mercury as the bulk of the substance left in the pan. The mercury will take up gold and form amalgam; this is strained to separate any excess of mercury, and is finally heated over the fire in a crucible or iron pot; the heat drives off the mercury in vapor, leaving the gold, which can be fused into a globule.

The detection of gold in combination with other metals is more difficult, and the prospector would not, probably, have the means to make a satisfactory examination of them while in the field. It is very common to find it alloyed with copper or silver and other baser metals. It is a curious fact, also, that the specific gravity of pure gold varies, as also its shade of color, but these peculiarities will not lead one astray in detecting it. When found existing in lumps or pieces of irregular shape they are called nuggets, and there

are records of some magnificent specimens; one from Australia weighed one hundred and eighty-five pounds.

The substances most frequently mistaken for gold are iron pyrites, copper pyrites, and mica. The precious metal is, however, easily distinguished from these by its malleability (flattening under the hammer), and its great weight, sinking rapidly in water. It is the heaviest of all metals excepting platinum.

ASSAYING THE GOLD ORE.

The prospector has discovered a vein of ore that he finds is rich in silver or gold, and wishes to know how much of the precious metal the ore will yield to the ton, which determines its value as the basis of a paying mine. Whether an ore is profitable depends not only upon the relative value of the metal, but also upon the labor required to get it out and to separate it from the rock or gangue (pronounced gang), as it is called. In the relative values of metals there is a wonderful difference in the percentage demanded of an ore to class it as a paying one. While an iron ore that would not yield over twenty-five per cent would be discarded as worthless, only two per cent is demanded of copper ore, one per cent of mercury, while the ores of the precious metals are paying if they will give one two-thousandth per cent of silver, one ten-thousandth per cent of platinum, or one one-hundred-thousandth per cent of gold.

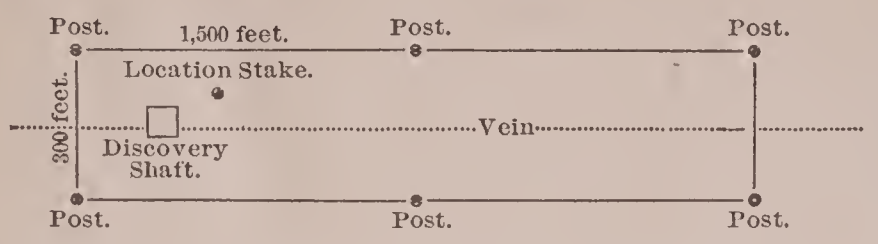
If we are testing for gold and the specimen is quartz, the operation just described will not only show the presence of the metal, but also the quantity, if it is carried on with more method, and we have at hand some means of accurately weighing the products of our experiment. A weighed portion of the quartz is reduced to powder, and amalgamated; the gold taken up carefully, is weighed after the mercury is volatilized; this will give us the parts of an ounce contained in the quartz operated on, and from this we get, by proportion, the probable amount contained in a ton of the rock.

This experiment will have to be repeated a number of times, and an average of the different results taken for our final determination, as, of course, there will be some pieces richer than others, and the individual results will vary in a way they would not if we could operate upon a large quantity at a time. If the gold is found in pyrites we weigh out a portion, reduce it to powder and wash as before; then the residue is carefully roasted at a read heat to drive off sulphur and any volatile components. After roasting it is amalgamated and manipulated the same as just described for quartz. Pyrites should yield at least one dollar's worth of gold to the bushel of ore to be profitable; quartz should give about six dollars worth to the ton in order to pay. Gold is found in native silver, and as one metal is acted on by nitric acid while the other is not, we have an easy method of separating them. The silver is made as thin as possible by carefully flattening the specimen with a hammer; it is then weighed and put into a vessel of boiling nitric acid, and in about ten minutes the silver will be perfectly dissolved, leaving the fine gold as an undissolved powder. The acid is poured off carefully, and the powder washed, dried and weighed. Although none of the mineral acids will dissolve gold, yet a mixture of two of them will, viz.: nitric and muriatic. This mixture is called *aqua regia*, in consequence of this power on the noblest of metals. If one has aqua regia at command, any substance can be tested for gold by its use. Submit the substance in a powdered or finely divided state to the action of the aqua regia; if the substance is not all dissolved, pour the liquid off into another receptacle, separating it from the undissolved portion, then add to the liquid a solution of copperas, and if there is any gold present, it will make its appearance as a reddish-brown precipitate. This must be dried when, if it is rubbed, it will assume a bright metallic luster.

To test the purity of gold, rub it on a piece of hard black slate and there will be left on the stone a yellow streak; touch this streak with a drop of nitric acid, and if the gold is pure, it will remain unchanged; if alloyed with some other metal it will partly disappear, while if it is only an imitation of gold it will disappear entirely. In washing for gold in the sands of a river, it is generally considered paying if it will yield twenty-four grains of gold for each hundred weight of sand to be handled and washed. By far the greater amount of gold in the world is obtained in this way, and where the same plan is carried on, on a gigantic scale, with the aid of powerful machinery, it is known as hydraulic mining.

THE LAWS OF MINING REGIONS.

Having discovered a deposit of rich ore, the prospector wishes to secure himself in the title of it; and this is done by properly staking it off and posting a notice. In most of the mining regions in the United States the law allows the claim owner a space of ground extending 1,500 feet in length in the direction of the vein, and 300 feet wide, so that a claim, when laid out and staked off, will be like the diagram on the following page.



The prospector should see well to it that the land is laid off in the direction in which the vein extends, otherwise the 1,500 feet in length of the claim will be comparatively valueless to him. The boundaries of the claim must be marked by stakes driven in the ground, or stood up with stones piled around, or by other permanent mark or monument, and a plain sign or notice must be posted up at the place of discovery, bearing the name of the lode, the name of the locator, and the date of the discovery, something as follows:

TRUMPET LODE.

The undersigned claims sixty days in which to sink discovery shaft, and three months to record claim on this vein.

OGDEN WHITLOCK.

September 10, 18 .

The miner must now go to work and sink his discovery shaft to the depth of ten feet at least, within the sixty days. Having done this, he should, if possible, have a survey of the claim made by a competent surveyor, but this may be dispensed with, and the location certificate may be made out describing the claim sufficiently well from the boundaries set up by the prospector. This location certificate must be drawn up and filed in the recorder's office of the county where the claim is situated, and will be in the following form:

LOCATION CERTIFICATE.

Know all men by these Presents, That I, Ogden Whitlock, of the county of Boulder, state of Colorado, claim, by right of discovery and location, fifteen hundred feet, linear and horizontal measurement, on the Trumpet Lode, along the vein thereof, with all its dips, variations and angles; together with one hundred and fifty feet in width on each side of the middle of said vein at the surface; and all veins, lodes, ledges, deposits and surface ground within the lines of said claim, twelve hundred feet on said lode running east ten degrees north from the center of the discovery shaft and three hundred feet running west ten degrees south from the center of the said discovery shaft.

Said claim is in the valley of Spring Creek, in Boulder county, state of Colorado, and is bounded and described as follows (*Here describe the claim by its boundaries*).

Said lode was discovered on the 10th day of September, 18 , and located on September 21, 18 . Date of this certificate, October 4, 18 .

OGDEN WHITLOCK.

Attest: JOHN DOE.

The location of any lode claim shall be construed to include all surface ground within the surface lines thereof, and all lodes and ledges throughout their entire depth, the top or apex of which lie inside of such lines extended downward vertically, with such parts of all lodes or ledges as continue by dip beyond the side lines of the claim, but shall not include any portion of such lodes or ledges beyond the end lines of the claim, or the end lines continued, whether by dip or otherwise, or beyond the side lines in any other manner than by the dip of the lode. If the top or apex of a lode in its longitudinal course, extends beyond the exterior lines of the claim at any point on the surface, or as extended vertically downward, such lode may not be followed in its longitudinal course beyond the point where it is intersected by the exterior lines.

The law requires that there shall be at least one hundred dollars' worth of labor performed on the claim each year for five years, before the government will issue a patent for the land. Within six months after any set time or annual period allowed for the performance of labor, or making any improvements upon a lode claim, the person on whose behalf such outlay was made, or some person for him, shall make and record an affidavit in substance as follows:

STATE OF COLORADO, }
.....COUNTY. } ss.

Before me, the subscriber, personally appeared ....., who, being duly sworn, saith, that at least.....dollars' worth of work or improvements were performed or made upon (*here describe claim or part of claim*), situate in.....mining district, county of....., state of Colorado. Such expenditure was made by or at the expense of....., owner of said claim, for the purpose of holding said claim.

(Signature.)

(Jurat.)

This affidavit is regarded as *prima facia* evidence of the performance of the required labor.

In order to relocate an abandoned mine it is necessary to sink a new discovery shaft, and fix new boundaries, the same as if it were the location of a new claim; or the relocator may sink the original discovery shaft ten feet deeper than it was at the time of abandonment, and erect new, or adopt the old boundaries, renewing the posts, if removed or destroyed. In either case, a new location stake must be erected. In any case, whether the whole or part of an abandoned claim is taken, the location certificate may state that the whole or any part of the new location is located as abandoned property. But it is always safe to sink a new discovery shaft and fix new boundaries. Whether the shaft is an abandoned one or not, is determined practically by the annual labor, as prescribed by law, being performed or not.

Mining claims are conveyed and mortgaged the same as real estate.

HYDRAULIC MINING.

WORKING A MINE.

As we have already remarked, miners have classified ore veins into three species: the dip, or rake vein, the pipe vein, and the feather vein; and the kind of vein to be worked has a great deal to do with the manner of operating. The most desirable are the dip veins, as they can be more systematically worked, and the quantity of ore contained in them more certainly guessed at. The pipe vein is so-called from its small size and round shape. In working the dip vein, an excavation is first made to learn the angle of dip. Then a point is chosen, far enough from the outcrop, so that a shaft if sunk perpendicularly will strike the vein at the depth that is proposed to commence the working—from thirty to one hundred feet—generally limited by the capital at command of the miners. The shaft is a hole large enough to allow the buckets of ore to be drawn up, and the miners and material to be sent down. When the shaft reaches the ore, tunnels are started in opposite directions in the body of it, and as fast as excavated it is sent up to be reduced. The bottom of the shaft is carried down several feet below the level, and into this pit the water from the level is drained and forms a reservoir from which the drainage can be pumped to the surface. All the ore in the vein is now taken out from between the walls, and is replaced by heavy timbering or waste rock material.

It sometimes happens that dip veins are so inclined that they meet and form those wonderful deposits of rich ore that have been given the name of bonanzas, and are the greatest prizes in the mining business.

The pipe vein generally follows a crooked course and often disappears entirely, works out completely, or will diminish from a width of eight or ten feet to as many inches, after it has been worked for a long distance, and will in a few feet more begin to widen out again to its first dimensions; or, a pocket will be stumbled on, a mass of rich ore corresponding to the bonanza, but on a much smaller scale.

Sometimes while a vein is being worked successfully, and there is every prospect of plenty of ore, the vein showing no sign of diminution, it will all at once give out entirely against a solid wall of porphyry. This is known as a fault, and has been caused by some geologic convulsion of the earth; the vein has been broken and the ends separated from each other. The miner must explore, up, down, in every direction until he strikes the thread again; or, if it is a pipe vein, he is sometimes obliged to give up the search in despair.

In hydraulic mining a powerful stream of water is thrown against a bluff by the use of machinery until torn down and washed away by the furious action. The debris is then handled on a large scale similar to the manner of a gold washer with his pan or cradle. It is led through a series of shallow flumes with many cross pieces that cause riffles in the water as it runs through them. In these riffles the gold sinks to the bottom and remains there. Mercury is put in others, and it catches the lightest particles of gold and holds them as amalgam.

When ore has been extracted from a mine it must first be freed as much as possible from the adhering rock or gangue, after which it is finely pulverized. The modern method of pulverizing is to pass the ore through a rock breaker first, which crushes the rock into pieces about as large as walnuts; it is then carried under massive stamps that change it into fine powder. While being powdered, water is brought to it, so that it comes from the stamp in the form of soft paste.

The impalpable paste from the mill is now placed in suitable vats, and there is added to it, what is called magistral, a name given to roasted iron and copper pyrites. A certain percentage of the magistral is thoroughly mixed with the finely divided ore; mercury is then added in quantity equivalent to about six times the amount of silver contained in the ore as determined by assay, and the mass thoroughly kneaded. The kneading operation is repeated until the different substances are thoroughly incorporated, then the mass is washed to separate the heavy amalgam from the light gangue. The amalgam is pressed in a canvas bag to separate any excess of mercury, then put in iron retorts, heated enough to volatilize the mercury; the vapor of mercury is led into cold water and condensed to be used again; the silver, left in the retort, is melted and run into bars, and is afterward refined.

Another and more common method is, after the ore has been finely pulverized, to mix with it a portion of salt and pyrites, and roast the mixture, during which the ore loses ten per cent of its weight and is changed to a brown color. It is then ground very find and passed through a sieve and is then conveyed to the amalgamating pans or barrels. This method with different modifications is the one generally employed in this country.

MINING SHARK.

A familiar personage in cities away from the mining regions, is the "mining shark." He may be described as a smooth and fluent talker, well dressed, and apparently provided with ample means at command. His conversation is grandiloquent; if one listens to him,

he makes the road to fortune seem very smooth and straight. He carries numerous samples of ores, and can tell their composition to the very smallest fraction of a per cent. He has a handsomely colored map, showing the location of his mines, and a printed prospectus telling the geological formation of the country in the vicinity of his location, with a scientific description of the outcrop, with the dip and strike of veins, and the results of deep borings; all going to prove that it is a true fissure vein. Hearing these men talk, one is led to wonder why they have come so far away from their rich possessions, for the assistance of other men. If their ores were so rich and so easily worked as they claim, a man would soon make himself rich by his own labor. But labor is not what they are looking for; they want money without work, and they get it in plenty from credulous people who believe their fascinating stories of gold and silver to be had in great chunks, almost for the mere picking up. It often happens that these men will take their victims to the proposed mine and show them a hole in the mountain, and although the victim cannot see the wonderful things promised by the prospectus, yet his ignorance will betray him, for he does not know how to judge of the new business. It all seems so easy; merely getting this soft rock, tons at a blast, and so many dollars counted in every ton.

A man should be slow to invest his money in a mining company without acquainting himself with the business character of the men he is to be associated with. He should be certain that a thorough prospect has been made, by means of borings under the direction of a man capable of judging of the results, and if the outlook favors the opening up of the mine, let it be done in an economical manner, every detail looked after as carefully as in any other business, with proper adjustment of outgo to income, looking upon the enterprise rather in the light of a manufacturing business, than as a search for the philosopher's stone.

The mining shark of the mountains is a prospector with a whole museum of specimens. If he can catch a "tenderfoot," as they call an ignorant newcomer in the mountains, he will fill his mind as full of visionary schemes of easily acquired wealth, as his brother who travels with maps and pamphlets among the cities in the states. If his victim is too shrewd to buy from small specimens, he takes him to a claim that he has "salted," or that has been prepared in such a way that a quantity of fresh ore taken from the hole will show a large percentage of gold or silver, or both, to a ton. There are several ways of accomplishing this end of making an ore seem more desirable than it is, and very ingenious schemes have been invented for it. A gun charged with an ounce or two of gold dust is fired into the hole, with the result of leaving the rock and earth specked with the scattered grains of gold. The gold can be nearly all recovered again, and when the unsuspicious "tenderfoot" sees a quantity of rock taken out, apparently at random, and before his very eyes it yields up a quantity of pure gold in such proportion as would indicate an enormous quantity to the ton of rock, he is ready to empty his pockets without parley, for the partial ownership of this nature's treasure-trove.

If molten silver is dropped into water slowly from a height of two or three feet, it will be found in a finely divided state in the bottom of the pail. This puts it into a good shape for the use of the mine swindler. He partially oxidizes the silver by the use of a weak acid and then carefully conceals it in the interstices of the rock, where it may be found when an examination is being made of his claim. A little silver may be made to go a long way for this purpose, and like bread cast upon the water, it will be found again. It will have, too, an exaggerated value, as it is to be estimated in the ton of rock, as in the case of gold, and the purchaser congratulates himself as he thinks of the bargain he is securing. He cannot doubt the truth of the presence of the metal, as claimed, for the whole operation has been performed under his eye, without the slightest apparent endeavor to deceive, and he is deluded into believing that he is being taken into a secret—the prospector discovered the mine, secured the claim, and is only waiting to find a good and honest partner to help him get the ore out. Flattery and avarice win, and the greenhorn thinks he sees a chance to get a bonanza for almost nothing, only to find himself mistaken when it is too late to correct the error. These are only specimen ways of "fixing" a mine. Chemical means are also employed, and made to give the same high character to a worthless mine.

WALL STREET

AND THE

New York Stock Exchange.

GREATEST of all the centers of business and financial transactions on this continent, is Wall Street, New York. So sensitive as to be properly denominated "the pulse of the country," it feels every throb and movement of the great body. As the financial center of the country, and the great speculative center of the world, the street is quickest to respond to changed conditions or prospects in the material affairs of nations and individuals. A war in Europe, a fire in Boston, a failure in Chicago, a storm in the West, the appearance of cotton worms in the South, or weevils in the wheat fields, and an infinite variety of facts of the most diversified character, calculated to affect real and speculative values, however slight, are first manifest in the New York Stock Exchange. The transactions upon that Board are frequently 700,000 to 800,000 shares of Stock daily. This, at par value, would be $80,000,000. And this statement does not include the bond or investment transactions, but simply the stock speculations. The influence of Wall street is potent the world over, and the magnitude of its transactions the subject of marvel among men.

WALL STREET with Treasury Building at the Right, and Trinity Church at the Head of the Street.

Wall street derives its name from the fact that it was originally the location of a wall bounding the north end of the little settlement, which has since grown to be a great city. This wall extended across Manhattan island, from the east to the Hudson river, and was built as a defense against Indians and wild animals. One of the first buildings of any consequence erected on Wall street, was the City Hall, at the head of Broad street, and this brought prominence at once to the locality. At one time the street which is now the scenes daily, of great financial transactions, was a fashionable residence neighborhood, occupied by what was, in those days, palatial residences. In Revolutionary war times, Wall street was the center of the most active demonstrations, and all the meetings were held in the City Hall.

The Continental Congress was conceived, and its

convention persistently advocated by the leading business men and other prominent citizens of New York, who found Wall Street the natural place for meeting and discussion. In the old City Hall, which stood on the site of the present treasury building, the first Congress of the United States, after the adoption of the Constitution, assembled, and on its balcony George Washington was inaugurated first President. Since that day, in every crisis, political or financial, Wall Street has been first to respond to the realization of every emergency. In the dark days of our nation's peril the sensitive street indexed perfectly the public state of mind, and few who were there will ever forget the feeling on the street when the news was received of the assassination of Abraham Lincoln.

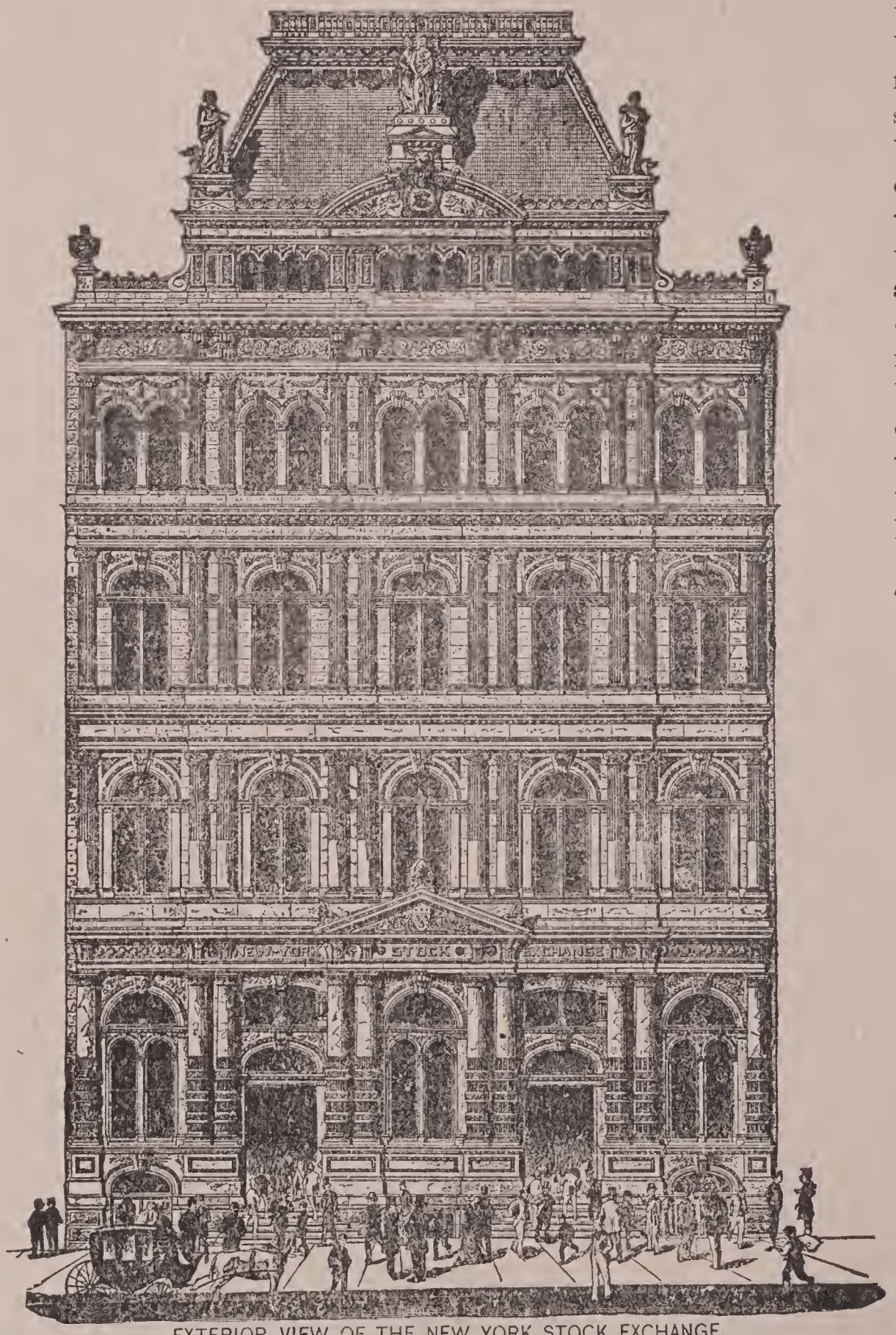
At the present time Wall Street extends only from the East river to Broadway, where stands Trinity church, looking down the famous street, and uplifting its graceful spire, as if a perpetual reminder of more solemn things; but the busy money-getters, who swarm like flies under the shadow of its venerable walls, find no time or taste to linger over such reflections.

THE BULLS AND BEARS OF THE NEW YORK STOCK EXCHANGE.

A GREAT FINANCIAL CENTER.

About a century ago an old button-wood tree stood in front of what is now No. 60 Wall street, just below where the Custom House stands, and its wide-spreading branches and thick foliage afforded ample shelter from either the rain, or the heat of the mid-day sun. Its trunk was several feet in diameter, and by common consent the space within the shadow of its branches became a "place where merchants most do congregate," and a few of the more active and enterprising men of the young city were in the habit of meeting there for the purpose of bartering in the few securities which the country offered. It was under this ancient button-wood that the nucleus of what is now the greatest institution of its kind in the world—the New York Stock Exchange—was formed. Not, however, until the year 1817, was a formal organization of the Stock Exchange effected and a constitution adopted, and this underwent a thorough revision in 1820, when some of the most prominent capitalists in the city

joined the organization, and from which time may be said to date the real history of the present New York Stock Exchange. The war of 1812 had given the first genuine impulse to speculation, the government placing loans upon the market which amounted in the aggregate to $190,000,000, and in which there were wide fluctuations in the market quotations. Bank stocks also became a favorite class of investments, and in 1816 there were over 200 banks in the country with a combined capital of $82,000,000. An idea as to the character of some of the business of the brokers of that day may be gained from the statement that the government 6's of 1814 were worth 50 in specie and 70 in New York bank currency. The lucky speculations in the "shin-plasters" of the period formed the basis upon which was built up in subsequent years one of the leading brokerage houses on Wall street.



EXTERIOR VIEW OF THE NEW YORK STOCK EXCHANGE.

The meetings of the Exchange were originally secret and not recognized by law. The total transactions of a day seldom equaled 1,000 shares of stock, most of the purchases and sales being made in small lots of 10 to 25 shares each. Sales were generally made on a credit of ten, thirty, or sixty days, and sometimes six and even twelve months' time was allowed, the security meanwhile remaining with the seller, and the buyer paying interest. A list was kept of the various securities dealt in, and these were called up one at a time. Dealings were allowed in each only as it was reached in turn, and when the list was completed, business was closed for the day. The secretary of the board kept a record of all the transactions and the minutes were read over at the conclusion of each day's business, which then became final evidence of the conditions and terms of the contracts that had been made.

THE PRESENT STOCK EXCHANGE.

After the great fire of 1835, the Stock Exchange was compelled to shift about for suitable accommodations, and for a time held its sessions in Jauncey Court; then, in 1842, returned to a hall in the Merchants' Exchange, which had been rebuilt, and in which it continued to operate until its present building was erected, in 1865.

During all these years of growth and prosperity on the part of the Stock Exchange, it has not been without rivals and competition from other similar organizations which have sprung up in its vicinity, which have aimed to draw off the immense patronage or divide the

profitable business of the great and constantly growing Exchange. In a lower room of the Merchants' Exchange building, a rival organization known as the "Bourse," had been established, and among its members were a number of persons who had previously belonged to the Stock Exchange, but who had failed and obtained discharges in bankruptcy. They were not, however, under the rule of the Stock Exchange, entitled to readmission. For some time the Bourse, or "Open Board," as it was also called, made serious inroads into the business of the Stock Exchange, and it became evident that the two boards should be brought together in some way. This was done by the old Stock Exchange gradually absorbing the members of the Bourse, waiving restrictions that would otherwise interfere with their readmission, and in 1846 the sessions of the Bourse were discontinued. At about the same time, encouraged by the success thus secured, the initiation fee to the Stock Exchange was raised to $400, at which price many new members were received. In 1823 the initiation fee had been fixed at $25, from which it was raised, in 1827, to $100, and in 1833 it was further increased to $150.

THE BUILDING.

The present Stock Exchange building is an imposing edifice, and presents a striking appearance as it fronts on Broad street, just off from Wall street. It is faced with white marble, and the entrance is made through an elaborate portico of polished granite and marble, above which is carved the name, "New York Stock Exchange." An elaborate finish is displayed throughout the entire front of the building, and pilasters, friezes and cornices are combined in rich profusion. Above all a handsome slated mansard roof caps the palatial structure, from which, on public days, always floats on the breeze, the stars and stripes.

Within, the floors of the building are richly tiled; the ceilings are elaborately frescoed, in which blue is the predominant color in the Board room, and the stairways are of easy ascent, with iron, granite and marble steps.

THE ROOMS.

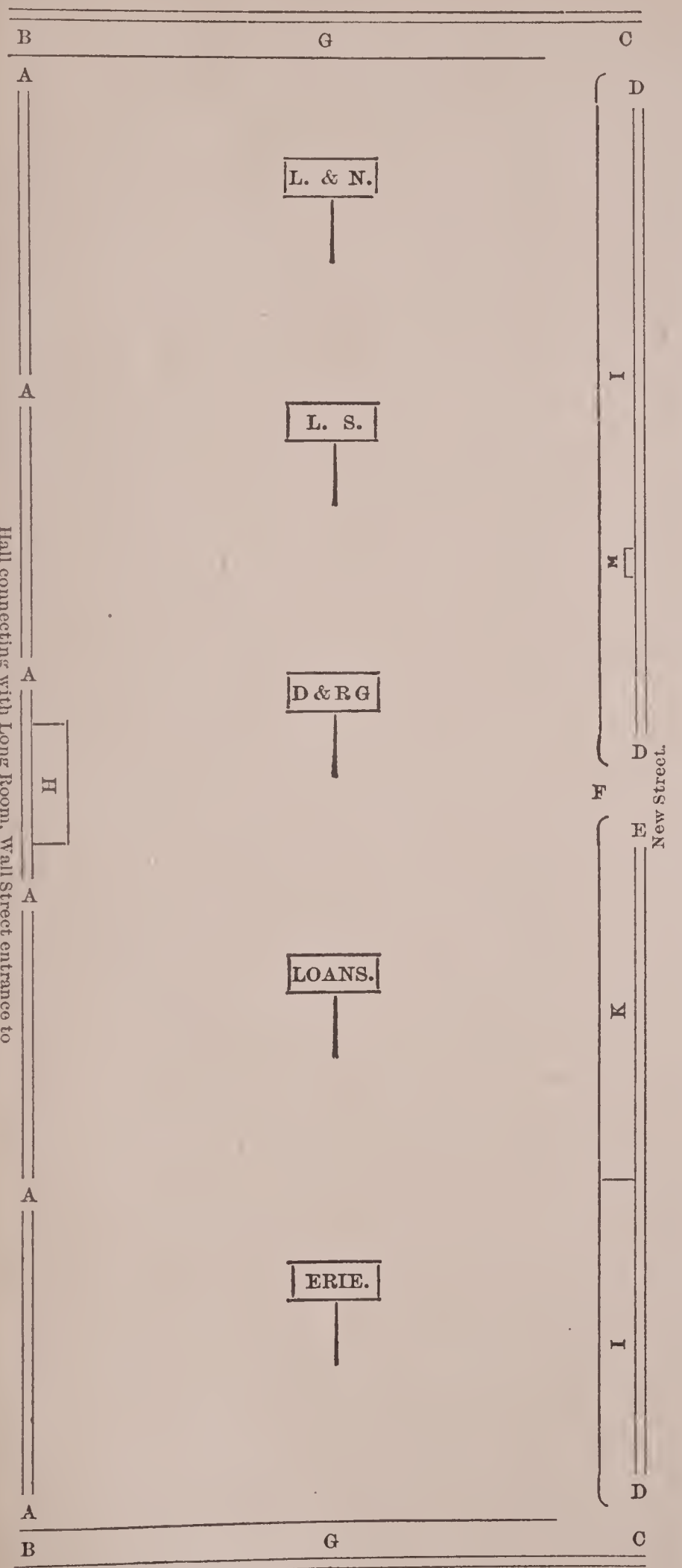
In form, the building is a T, with the stem somewhat shortened. It extends from Broad to New street, with an area running out to Wall street, and entrance is effected from all sides. Entering from Broad street at the first door below Wall street, the first room is occupied by telegraph and telephone offices, and seats for the members, next to which, and also reached by the second doorway, is the "long room," which is 40 by 68 feet. Persons who are not members of the Exchange are admitted to these two rooms upon the payment of a subscription fee of $100 per annum. The board room where the regular purchases and sales of stocks are made, fronts on New street, and is 140 feet long by 53 feet wide, the hight of the ceiling being 55 feet. The ceiling is made entirely of iron in flat panels, frescoed in the renaissance style and with ornamental lunettes in its center. The rostrum is situated against the inner wall, and about midway between the extreme ends of the room. In and out of the New street entrances to the board room, messengers carrying orders and returning from their delivery, go and come constantly throughout the time the Exchange is open, from 10 A. M. to 3 P. M. There is a gallery on a level with the second floor at each end of the board room for the accommodation of visitors who wish to witness the struggles of the bulls and bears on an active day, or watch the knockings off of hats which occurs at times when trading is dull. No persons except members of the Exchange in good standing are admitted to the floor of the Exchange.

The room in which the dealings in government, railroad and state bonds take place, and in which the governing committee also meets, is on the second floor, next to which and looking out on Broad street is the secretary's room. The third and fourth stories are devoted to committee rooms.

The membership of the Stock Exchange is now about 1,100. Viewed from the gallery, the Stock Exchange, in session, would be regarded by the uninitiated observer as a disorderly and confused mass of human beings without method or restraint, engaged in a medley of bargains and disputes which would surpass the ingenuity of any one to unravel or comprehend. The din and noise of thousands of voices mingle into a roar, and the operators vociferate and gesticulate as if they were an angry mob. But underneath all this surface of seeming confusion, there is a system, order and exactness, and the Stock Exchange is a model of

METHOD AND GOVERNMENT.

The entire government of the Stock Exchange is vested in a Governing Committee, composed of the president and treasurer of the Exchange and forty members, one-fourth of whom are elected each year. They have power to try all offenses under or against the laws of the Exchange, and all charges against members, and their decision is final. A majority of all the members of the governing committee, as well as



FLOOR DIAGRAM, NEW YORK STOCK EXCHANGE.

A, Door connecting the floor of the Exchange with the hall; B, the entrance to the passages G, at the ends of the room, through which persons having access only to the Long Room may pass, or stop and converse with their brokers; C, the New Street entrance to the same passages, and also to the floor of the Exchange: D, the New Street entrance for clerks and messengers from brokers' offices, who arrange themselves along the passage ways I, and from a stand, M, the numbers of the brokers who are wanted at the door or railing are exposed in white figures upon a blackboard at each end of the room by electricity; E, the entrance for the American District Telegraph messengers, the passage way K being set apart for them; F, the central main entrance from New Street to the floor, for use only by members. The signboards arranged along the center of the floor, indicate the location in the room where the more active stocks are dealt in; they indicate, for instance, the location of the "Erie crowd," the "Lake Shore crowd," etc. Other parts of the room are by common consent set apart for specified stocks, where most of the dealings in them take place. H, the rostrum where the chairman's desk is situated, on an elevated platform. The floor of the Exchange is 145 feet long, and 55 feet wide, and the ceiling is 63 feet high. Directly over G, at either end of the room, and on a level with the second floor of the rest of the building, are the visitors' galleries. It is directly under these galleries that the brokers' numbers are displayed when they are called for by outsiders or messengers. Each member of the Exchange has a number, which goes with his seat.

of each of the sub-committees, is necessary to constitute a quorum. The members of the governing committee, together with the vice-president and the secretary, constitute the officers of the Exchange, and no person is eligible to any office who is not, at the time of his election, a member in good standing.

There are a number of standing committees, each having charge of its own special department, the principal ones of which are as follows: A Finance Committee; a committee of Arrangements; a committee on Admissions; a committee on Securities, a committee on Government Securities, a committee on Stock List, an Arbitration committee, a Law committee, a committee on Commissions, and a committee on Insolvencies.

The committee on admissions consists of fifteen members, and to it are referred all new applications for membership and all applications of suspended members for readmission; two-thirds of the committee approving, the candidate is declared elected or re-elected to a membership in the Exchange, whereupon the chairman of the committee informs the presiding officer of the Exchange of the admission, and the announcement of the same is made to the Exchange. Every applicant for membership must be at least 21 years of age, and pay the required initiation fee of $10,000—this does not cover the price of a seat, but is the fee payable to the Exchange for the original membership. Any member has the right to transfer his membership by submitting the name of the transferee to the committee of admissions, providing that two-thirds of the committee approve the transfer and the member transferring has no unsettled contracts. Within the past year or two seats have sold as high as $32,000; during

the dull period of 1876 and 1877 the price declined to $3,500. No transfer of membership is permitted until all dues to the Stock Exchange have been paid in full, such dues being treated as a prior lien upon the proceeds of sale of membership certificate.

When a member dies, his membership is disposed of by the committee on admissions, and after the claims of the members of the Stock Exchange have all been satisfied, the balance is paid to the legal representatives of the deceased member.

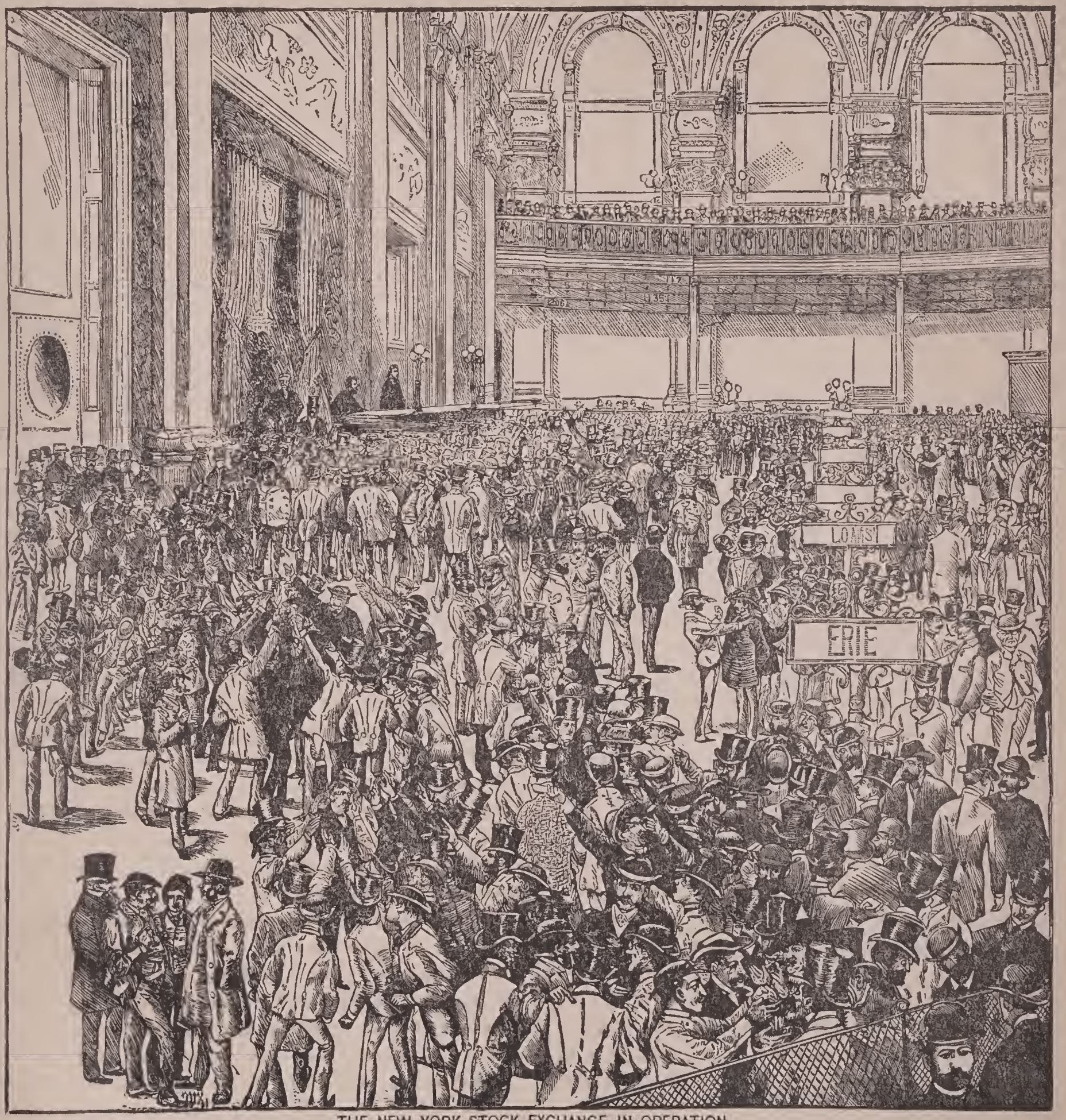
Any member who fails to comply with his contracts, or who becomes insolvent, is immediately suspended until he has settled with his creditors. It is the duty of such member immediately to inform the president in writing that he is unable to meet his engagements, and the presiding officer gives notice at once from the chair, of the suspension of such member. If he fails to settle with his creditors within a year, his membership is disposed of by the committee on admissions and the proceeds paid *pro rata* to his creditors in the Stock Exchange, but the governing committee may extend the time for settlement beyond one year. No member is allowed to take as partner any suspended member, during the period of his suspension, or to form a partnership with any insolvent person, and whenever the governing committee shall determine upon the report of the committee on insolvencies, that the failure of a member has been caused by his doing business in a reckless and unbusiness like manner, he may be declared ineligible for readmission, by a majority vote of the entire governing committee.

The rules governing dishonest practices, are very stringent. It is provided that any member convicted of making fictitious sales shall be expelled, and the member making fictitious or trifling bids or offers shall, upon conviction, be subject to suspension or such other penalty as the governing committee may impose. All debts, without distinction, are binding upon the members of the Exchange, and "should any member be guilty of obvious fraud, of which the governing committee shall be the judge, he shall, upon conviction thereof by a vote of two-thirds of the members of said committee present, be declared by the president to be expelled, and his membership shall escheat to the Exchange." Any member who shall himself, or whose partner shall apply for an injunction restraining any officer or committee of the Exchange from performing his or its duties under the constitution and by-laws, by that act ceases to be a member of the association; and any member uniting directly or by a partner with any other organization where stocks, bonds, etc., are dealt in—except the New York Mining Stock Exchange, where there are no dealings in railroad and state stocks and bonds—ceases to be a member.

It is the duty of the president to see that the several provisions of the constitution and by-laws are enforced, and to have a care of the general interests of the Exchange, but the position is chiefly an honorary one and is without salary. The officer who presides over the board from 10 A. M. to 3 P. M., when it is assembled for business, is the chairman, or in his absence, the vice-chairman. They generally alternate by each serving one-half of the day. Neither one is permitted to operate in stocks during the period that he is presiding. The "calls" in the board room and also in the government department are made by them, and they determine all questions of order, including the infliction of fines for minor offenses, such as indecorous language, disorderly conduct, etc.

The duties of the secretary are onerous and the position is one commanding much respect—next to that of president—but while the presidents are changed frequently it is the custom of late years to elect a new man at the end of either the first or the second year—the secretary is retained for many years; the last change was made only upon the refusal of the occupant who had served for fourteen years, to remain longer in office.

Upon the death of any member of the Exchange each surviving member is assessed $10, and the faith of the Exchange is pledged to pay to the widow and children, or the next of kin, out of the money so collected, $10,000, or as much as may have been collected, but it is specifically stipulated that this shall not be construed as constituting an estate *in esse* which can be mortgaged or pledged for the payment of any debts. It is made the special duty of the governing committee to increase the surplus revenues of the Exchange as far as possible for the purpose of accumulating a fund which is known as the "gratuity fund," which is under the charge of a board of trustees, composed of the president and treasurer of the Exchange, and of five other trustees who hold office for five years, and one of whom is elected annually. Each new member is required to pay $10 to the gratuity fund, and when the annual income of the Exchange exceeds its actual current expenses by $10,000, one-half of that sum is turned over to the trustees of the same fund, the other half being credited to the members in reduction of their annual dues. Whenever the number of deaths of members exceed fifteen in any one year, thus making the amount due from each member for death claims during the year more than $150, the excess is to be



THE NEW YORK STOCK EXCHANGE IN OPERATION.

paid from the gratuity fund, if there is sufficient money belonging to the fund for that purpose; but if not, the liability of members to pay in excess of the $150 is not impaired. The gratuity fund is not to exceed $1,000,000, and this fund attaches to the seat, and is transferable with it.

THE LANGUAGE OF BROKERS.

The technical terms common to the street have small meaning to outsiders, but are fruitful and descriptive to those familiar with the traffic of which they are emblematic. There is, probably, no other business in the world more aptly described in the phrases peculiar to it. Regular vocabularies have been formulated, but a few of the leading terms will serve the explanatory purpose of the present article. It is well known that the speculation in stocks is between to elements, the Bears and the Bulls. The bears are those who are endeavoring to depress prices, and who operate for

lower figures. The bulls, on the contrary, are the operators for higher figures. The bears sell *short*—*i. e.*, they sell stocks that they do not own, and trust to manipulation or future events to buy them back at a lower figure. The bulls buy stocks, and bid up prices and use all schemes to force values to a higher plane. As a rule, the "outside," or non-professional operator, is a bull. It has never yet been the fortune of a broker to sufficiently explain to a novice how it was possible to sell what he did not own, and what he did not want to possess. It is easy enough for a person wishing to invest in stocks to understand that if he purchases 100 shares of Western Union at 82 and it advances to 83, that he has made one per cent minus the brokerage—$100 less $\frac{1}{8}$ for buying and $\frac{1}{8}$ for selling—or $75 net. Now if he had sold 100 shares at 82 and the stock had declined one per cent, to 81, the result would have been precisely the same. In all regular stock transactions the stock bought or sold must be delivered before 2:15 P. M. the following day. If the transaction is for "cash," the delivery must be made the same day. So when a broker sells a stock "short" he must go into the loan market and borrow it for delivery. All of the leading stocks are bought and sold in their respective sections of the board room. Thus, there is the Erie crowd, the St. Paul crowd, the Western Union crowd, etc., each circle being denominated a "crowd." In the same way there is the *loan* crowd, where stocks and money are loaned. And the more prominent houses have their brokers in each crowd who pay no attention to any other feature of the market. We will suppose A has sold 100 shares Western Union short at 82. He goes into the loan crowd and borrows of B at two per cent, *i. e.*, he gives his check for the amount of the stock, $8,200, and receives interest at the rate of two per cent per annum for his money. The lender can "call" the stock (demand its return) at the same price unless there is a distinct understanding to the contrary. If a stock loans *flat*, the borrower gets no interest for his money. It is frequently the case that the borrower is compelled to pay a premium for the use of a stock, *i. e.*, he receives no interest for his money and pays more than the market price for the stock, in order that the delivery may be made.

Short and long are terms descriptive of the relative positions of the sellers and the buyers of stocks. An operator is "short" when he has sold stock he does not possess, and "long" when he has accumulated stock. As a rule the professional speculators, and brokers are bears, and short of the market, while the outsiders, or non-professionals, are buyers. These "outsiders," so-called, are the *lambs*, and the real source of profit to the brokers and strength to the stock market. As a class, their knowledge of values is solely derived from the brokers, and it is because of their innocence, and their reliance upon the judgment of others that they are dubbed lambs. But there are some exceptions, and men who have an intimate knowledge of the actual worth of the properties in which they trade.

A *point* is the term descriptive of special advice given respecting the future course of one or more stocks, and the person giving a point is supposed by reason of association or relations to be possessed of knowledge not obtainable by the general public.

A *pool* is a combination of men who join their operations in order to secure and maintain control of a certain line of stocks and manipulate them for mutual profit. The usual plan after the formation of a pool is to place its management in the hands of one of the members. As an illustration, we will suppose a pool is formed to put up the price of St. Paul stock. Brokers are engaged to buy all that is offered. And when the pool has accumulated enough stock to control the deliveries, and a "short" interest has been created, the price can be forced up to a point that will yield big profits to the pool. Of course the success of a pool depends entirely upon the secrecy with which it is conducted and the adherence of each individual member to the original plan. It frequently happens that one or more members of a pool will operate against it for individual account, and sell out through other brokers stock that had been previously accumulated. This is called "unloading," and is, of course, a violation of agreement, or sharp practice.

"Buyer's option," is descriptive of a transaction in which the purchaser has the choice of taking a stock within a specified time. Ordinary purchases and sales are termed "regular," and are terminated by the regular rule of the Exchange, at the specified hour for the delivery of the stock—as previously stated, 2:15 P. M. the following day. But if the stock is purchased "Buyer 3," or 10, or 30, as the case may be, it need not be accepted by the purchaser until the expiration of the specified number of days. "Seller's option" is simply the reverse of this, the choice resting with the seller as to when the stock shall be delivered

When an operator or a clique obtains control of all or nearly all the available stock of a company, and then suddenly advances the price far beyond its normal market value, he is said to have "cornered" the stock. Some of these "corners" have become famous in his-

tory, notably the Northwest "corner," the Harlem "corner" and the Erie "corner," of later date, which were conducted by Daniel Drew, Commodore Vanderbilt, Jay Gould and James Fisk, Jr., respectively. It was this latter operation that gave Fisk the title of "Prince Erie."

To "cover," is to buy in stocks to close out a transaction, and applies equally well to an operation that has proved profitable, or that nets a loss.

A "limited order" is one that fixes the price beyond which the customer will not go, and a "stop order" is one given to sell out the stock held by a broker if it touches the point at which the stop is fixed, or to cover a short sale in case there is an advance. It is the method by which the customer prevents losses beyond a stipulated point.

At times it is desirable for parties in interest to give the appearance of activity to a stock, *i. e.*, to have, apparently, large transactions in it. This is done by two or more brokers operating together, and Jones buying all the stock that Smith offers. This private understanding is, in its nature, a fraud on outsiders, and if detected renders the offenders liable to expulsion. It is termed "washing." As there is no real transaction between Jones and Smith, the ostensible activity of the stock is deceptive. The purpose is, of course, to excite active purchases and sales by other parties, and prevent any decline that would naturally follow in case there was no market for the stock.

A "listed" stock is one which has been admitted to dealings on the Stock Exchange and the name placed on the list of such stocks. The *active list* is "called" daily. Stocks placed on the *free list* are only called upon the request of a member of the Exchange, which is done generally for the purpose of fixing the market value of the stock.

A stock is said to be "pegged" when the controlling clique prevent its going below a certain price, and take all the stock offered at that figure. This is the plan resorted to when it is for the interest of operators to keep the market strong.

DAILY ROUTINE.

The Stock Exchange is open for the transaction of business from 10 A. M. to 3 P. M., except holidays and such other days as may be designated from time to time by the governing committee. Of late years the governing committee has also ordered that during the summer season, the business shall not begin until 11 o'clock on Monday mornings. A fine of $50 is imposed upon any member who shall directly or indirectly make any transaction in stocks or bonds before or after the hours mentioned, in the Exchange or its vicinity.

The business of the day begins upon the announcement from the rostrum by the chairman that the hour has arrived; the announcement is usually made with the chairman's gavel. Every member who is taking an active interest in the market, at the time, is anxious to be present at the opening of the board, and it must be a dull time, indeed, when the first fall of the gavel is not immediately followed by shouts from different parts of the room and a rush to the points where the most active stocks are dealt in, the rapid bids and offerings being made with so much noise and in such quick succession as to confuse most thoroughly every one not familiar with the business. But every word and movement is comprehended instantly by the brokers. Posts are placed in different parts of the room on which are small sign-boards indicating the stock dealt in in that immediate vicinity. If the bears are making a raid on, we will suppose, Denver and Rio Grande (stock), the plans have all been matured before the opening of the board, orders have been judiciously distributed through some prominent house, to numerous brokers to sell a given number of shares of Denver at the opening, and a manifest desire to sell coming apparently from half a dozen sources at the same time, is sufficient to create the impression that something is wrong, and that a few persons are in possession of the facts respecting the unfavorable condition of affairs. Unless the bulls are prepared for the attack and are strong enough to take the stock offered promptly, a break in the price must follow. It may decline a fraction of one per cent, or even more, if the bulls are taken by surprise, and then rally; but, if the stock has few friends, and they not strong in their faith and bank accounts, there is nothing to prevent a heavy decline in the price of the stock. While this marking down process is going on—it may last a whole day, or many days—the "Denver crowd" is always a center of attraction on the board. A few of the leaders on both sides of the market are to be seen beating the air and shouting their bids and offers with such vehemence as to be heard for a considerable distance away from the Exchange building. A stranger would very naturally regard them as extremely angry and in the midst of a hand to hand fight. As a new recruit with fresh orders from either side enters the crowd, he is besieged almost to violence by the opposition, each one eager to be first in making the purchase or sale, and it requires a strong muscle as well as a strong nerve at times to resist the onslaught. To the experienced broker, however, it is

the very life of his business, and nothing is more distasteful to him than the *ennui* which accompanies a dull day at the Stock Exchange. The business of the board thus continues uninterruptedly until 3 o'clock, when a check is put to further proceedings by the vigorous ringing of a gong on the floor of the Exchange.

Until recently the chairman began the "call" of all regular or active stocks in the board room at 10:30 A. M., and again at 1:30 P. M., but these calls have been transferred to a room up stairs known as the governing committee's room, the calls now being made at 11 A. M. and 1:15 P. M. The stocks and bonds regularly listed include 136 railroad stocks, 60 bank stocks, 13 coal and mining stocks, 13 miscellaneous stocks, five express stocks, 75 state securities, 20 city and county securities, the various issues of the United States government, one foreign government security (Quebec), and 440 railroad bonds including 50 income bonds. There are also 190 stocks and bonds on the free list which are called only upon the request of a member.

A POOL.

The leading brokerage houses usually have some one member whose principal business is to execute the orders on the floor of the Exchange, and it is seldom that he can be found elsewhere during board hours. The orders received at the office are usually sent in a small envelope by a messenger boy to the board, the place for such boys being on the New street side of the building. Until recently, whenever a broker was wanted, his name was called loudly three times by an employe of the exchange, five or six of whom were always in attendance, and frequently a messenger went in search of him. At present, however, each active member of the board is given a number, running from one to 680, and when any one is wanted, his number is displayed at one end of the board room by means of an electric apparatus, which is operated from the messenger boys' corner. When the call is answered the number is covered again. The arrangement is giving much satisfaction, as a large percentage of the noise and confusion of the board room came formerly from the constant call for members.

The only record kept by the broker who transacts the business on the Exchange, is made on a little slip of paper, a bundle of which may always be seen in his hand during business hours. When the orders are executed these slips containing the briefest memoranda are sent again by messenger to the broker's office, whence notice of the transaction is given to the customer and the proper entries are made on the books. This is the only evidence of transactions which amount daily in the aggregate to many millions of dollars, and yet disputes seldom arise, and they are always settled without recourse to law. Each party to the transaction sends a notice to his office and, if the sale has been made in the regular way, during the afternoon a comparison is made by the two offices of their record of the purchase and sale. When an active business has been done, this comparison of figures with each house involves considerable time, and efforts have been made to establish a single clearing house, where all the comparisons of a day's business on the Exchange could be made. The stock purchased must be delivered before 2:15 P. M. of the following day, and when deliveries are not made by that time, the contract may be closed by an officer of the board, after due notice to the defaulting party, which must be given by 2:30 P. M., otherwise the contract continues without interest until the following day. When minor differences arise, an appeal is often taken to the chairman, whose decision is accepted. More important differenees are referred to the arbitration committee, which consists of nine members. The decision of this committee is final in all cases, unless an appeal is taken by a member of the committee, or unless the case involves as much as $2,500, when either party may appeal, within ten days, to the governing committee for a final adjudication.

HOW TO SPECULATE.

The number of persons who are not directly engaged in speculation as a means of earning a living, but who occasionally take a "flyer" in Wall street, is much larger than it is generally supposed to be. By out-

siders a great deal of secrecy is maintained when they try their luck in Wall street; but doctors, lawyers, clergymen, teachers, farmers, merchants, all speculate, and many of them without any definite idea, either in regard to the intrinsic value of the securities they buy, or the manner in which their orders are executed by their broker on the Stock Exchange. For the information of the uninformed the following suggestions and statements are made:

In the first place, do not for a moment think of risking any money in the stock market which you cannot afford to lose. The shrewdest operators, whose whole attention, night and day, is devoted to watching the market, and who have hundreds of thousands, or even millions to assist them in supporting their best judgment, often find it necessary to pocket a loss. You cannot hope to be more fortunate than they. Having decided to take your chances, select an honest broker who is a member of the Stock Exchange, to whom to give your orders. Such a man will not be difficult to find, but when found it will be necessary to satisfy him by introduction and recommendation as to *your* honesty and good financial standing. It is very safe to assume that the broker who will accept your account without having first obtained information in regard to your standing in the community where you are known, is himself not to be trusted. The rules of the Stock Exchange are very strict regarding the commissions to be charged. The constitution provides that:

"Commission shall be charged and paid under all circumstances, both upon the purchase and sale of stocks, bonds, and other securities either for members of the Exchange or for other parties, and the minimum rates on all securities other than gold, government bonds and exchange, shall be upon the par value thereof, as follows:

One-eighth of one per cent, when the transaction is made for any party not a member of this Exchange. No business shall be done at less than this rate for any persons or firms not members of this exchange, nor for any banking or other institution," etc.

The penalty for violation of this rule is laid down as follows:

" Any member violating this article, directly or indirectly, shall, upon conviction, cease to be a member of the Stock Exchange, and his membership shall escheat to the exchange.

Any member who shall be convicted of *offering* to do business for less than the foregoing rates, shall be considered as having violated the commission law and shall be subject to the penalty for so doing."

As the income from a commission broker's business depends very largely upon a strict observance by his associate members of the commission laws, a close watch is kept for any violation, and no other provisions of the constitution are enforced with as much severity as those relating to "obvious fraud," referring especially to the treatment of non-members, and the article above quoted governing commissions. There is little doubt that the law is sometimes violated, but again comes the question: Will not the broker who cheats his fellow member in the board and lays himself liable to expulsion, also cheat you when the opportunity offers? Rest assured that the opportunities for cheating you will be many times as great as those in which he can defraud his associates.

So far as is known, Wall street brokers, both members and non-members of the Stock Exchange, are not engaged in the philanthropic work of doing business for outsiders for nothing. Certain Wall street brokers who are not members of the Exchange are in the habit of advertising for business in which they announce that "orders will be executed on the Stock Exchange." This is done to deceive, and the deception usually consists either in not purchasing the stock at all, but reporting it as bought at some price at which the stock has sold during the day, or in buying the stock on the Exchange through a member of the board and reporting the transaction as having been made at a fraction above the figures actually paid.

Commission houses that advertise almost invariably announce, when such is the case, that one of the members of the firm is also a member of the Stock Exchange.

Having selected a broker and the stock in which you wish to operate, nothing further remains than to deposit the money required by the broker as *Margin*, and give him your order to buy or sell. Before 1862 the usual percentage required as Margin was five per cent of the par value of the stock; since the war the fluctuations have been so much more violent and rapid that first-class houses have exacted ten per cent where the trading is to be conducted in good dividend paying securities, and twenty per cent, or even more, where purchases and sales of fancy stocks are to be made.

Suppose that the whole market, after a dull period during which prices decline materially, has begun to advance, and that you have particular reasons for thinking that a certain stock is a good purchase. That stock may be Chicago, Milwaukee and St. Paul, common, or, as it is generally spoken of, " St. Paul," the market quotation of which is 103½. If you wish to trade in as much as 1,000 shares, you will have already deposited with your broker $10,000 and taken his receipt for the same. You give him a written or verbal order to buy 1,000 shares St. Paul " at the market,"

and the order is executed as quickly as possible. The first lot which is offered is 200 shares at 103½ and your broker at once cries "sold," and makes a note of the sale on a little slip of paper, a bundle of which he keeps in his hand. Some one is anxious to break the price, and a lot of 300 shares is offered at 103¼, which your broker takes at once, and he buys 500 shares more at 103⅜. The business is reported at once to the brokerage office, and in a short time you receive a notice which reads somewhat as follows:

We have purchased for your account and risk:
300 shares St. Paul common at..... 103¼
500 " " " 103⅜
200 " " " 103½
SMITH, JONES & CO.

The advance in the price of the stock which you expected, takes place, and you order 500 shares sold at 107, which is done. The remaining 500 shares you think you will hold for 108, but when the price touches 107¾ there is a halt, and then a sudden decline, and finally, in just one month from the time of the purchase you order the rest of your stock sold "at the market," which is done, the price realized on the last 500 shares being 104½.

This has been a profitable transaction and your account stands as follows:

Mr. A. B. in account with
Smith, Jones & Co.,

	Dr.	
To 300 shares St. Paul bought at 103¼...		$ 30,975.00
" 500 " " " 103⅜...		51,687.50
" 200 " " " 103½...		20,700.00
" Brokerage buying, ⅛ per cent.....		125.00
" " selling, ⅛ "		125.00
" Interest.....		427.30
Balance due.....		11,710.20
		$115,750.00
	Cr.	
By Cash (margin).....		$ 10,000.00
" 500 shares St. Paul sold at 107.....		53,500.00
" 500 " " " 104½.....		52,250.00
		$115,750.00

You now have a balance with your broker of $11,710.20, and as you advanced $10,000, the net profits from your purchase of 1,000 shares of St. Paul, was

"PUT."

New York, January 4, 18 .

For Value Received, *the Bearer may* DELIVER *me Five Hundred Shares of the Common Stock of the Chicago, Milwaukee and St. Paul Railroad Company, at One Hundred and Three per cent, any time in Sixty days from date.*

The undersigned is entitled to all dividends or extra dividends for which Transfer Books close during said time.

Expires, April 14, 18 ,
2 P. M.

RUSSELL SAGE.

$1,710.20. Had you sold the whole amount at 107, your profit would have been $1,250 greater. The details of the transaction in which you are charged with $427.30 interest do not appear in the above statement. The stock was bought "regular way," and was therefore not delivered to your broker until the next day, when he hypothecated it for a loan of $83,000, to which he added the $10,000 advanced by you and $10,362.50 which he contributed of his own money, thus making up the purchase price of $103,362.50. On the $83,000 borrowed, for which your stock was given as security, and on the $10,362.50 advanced by your broker, you were charged six per cent per annum (this is the rule except when money cannot be obtained on call at that rate, when the customer is charged the market price). After the first five hundred shares were sold, the interest paid was only one-half the original sum.

For illustration, we will suppose the next deal to be made on the other side of the market; that is, you sell short, suppose it to be 500 shares Western Union Telegraph stock at 79, regular way, and 500 shares Missouri Pacific at 104, seller 30. Both stocks, from information that you have received, you believe will decline, and you will therefore be able to buy them

cheaper. But meanwhile your broker must deliver the Western Union stock not later than 2:15 P. M. on the day after he sells it, and for that purpose he borrows 500 shares Western Union flat, that is, without interest. Interest is charged only when for some reason the stock is scarce, and is worth more at the time than the money. This may be the case shortly preceding the annual meeting of the company, when the stock is desired to control the election; or it is certain to occur when an effort is being made to corner the stock. The 500 shares Missouri Pacific you do not have to deliver for thirty days.

Nothing remains to be done but to await events. But the market does not decline as you expected. The bulls have discovered that there is a large short interest in Western Union, that is, that a large amount of it has been sold short in anticipation of being able to buy it in at a lower figure. The ring controlling Wabash and Texas Pacific is also desirous of bringing about an advance in the price of those stocks, in order that it

"CALL."

New York, March 15, 18 .

For Value Received, *the Bearer may* CALL ON *us for Three Hundred Shares of the Stock of the Western Union Telegraph Company, at Eighty-One per cent, any time in thirty days from date.*

The bearer is entitled to all dividends or extra dividends declared during the time.

Expires, April 14, 18 .
2 P. M.

W. E. CONNOR & CO.

may unload a block of 30,000 shares at a good profit, which it has just bought. But to secure the greatest advance the whole market must appear strong. To accomplish this purpose, there is a great deal of talk about the increased earnings of the trunk lines, and on very light transactions New York Central and Lake Shore rise two or three per cent. At the same time a "squeeze" is given the timid "shorts" in Western Union, and their efforts to buy in before the advance is too great to be protected by their margins, only stimulates the market still more, and to your amazement Western Union is selling at 84, Missouri Pacific is quoted at 106½. There is a break of one-half to one per cent in the whole market just when you are con-

"STRADDLE."

New York, May 5, 18 .

For Value Received, *the Bearer may* **Deliver me, or Call on me,** *on one day's notice except last day, when notice is not required, One Thousand Shares of the Stock of the New York Central Railroad Company, at One Hundred and Twenty per cent, if Put, or at One Hundred and Twenty-Eight per cent, if called, at any time in forty-five days from date.*

All dividends for which Transfer Books close during said time, go with the stock.

Expires, Two o'clock P. M.

O. M. BOGART.

sidering the question of pocketing your loss of $2,500 on Western Union, and encouraged by additional information contributed by the bears, you resolve to remain short. At the end of thirty days your broker borrows 500 shares Missouri Pacific and makes the delivery in accordance with the terms of the sale, and as Western Union by that time is selling at 88, he calls for more margin. You send him a check for $2,000, determined to "fight it out, if it takes all summer." Western Union touches 88½ and you reflect that if you had given your order to buy instead of sell, you might have made $4,750, less the commissions, instead of being that much poorer besides the commissions. Missouri Pacific does not go above 108. It is then discovered that a prominent member of the ring who agreed not to sell any stock for ninety days under an advance of ten per cent, has, through other brokers, been supplying the street including his associates with most of the stock that has been bought, and there is a sudden rush on the part of the remaining members of the combination to sell. You leave an order with your broker to buy in your 500 shares of Western Union at 81, and later he buys your Missouri Pacific at par. Your account stands as follows:

Mr. A. B. in account with
Smith, Jones & Co.

Dr.

To 500 shares Mo. Pac. bought at 100.....	$ 50,000.00
" 500 " W. U. " 81.....	40,500.00
" Brokerage, buying, ⅛ per cent.....	125.00
" " selling, ⅛ "	125.00
Balance due.....	14,460.20
	$105,210.20

Cr.

By Cash (margin and profits).....	$ 11,710.20
" " (additional margin.....	2,000.00
" 500 shares Mo. Pac. sold at 104.....	52,000.00
" 500 " W. U. " 79.....	39,500.00
	$105,210.20

In your last transaction you lost $1,000 on Western Union and made $2,000 out of Missouri Pacific, and as your advances for margin amount in all to $12,000 you are now $2,460.20 ahead.

Suppose the next time you take a "flyer" by buying 100 shares of Louisville and Nashville at 56, and to protect yourself against excessive loss in case of a heavy decline, you buy, for $100, a Put, running sixty days at 51. The stock has been subject to wide fluctuations. Within the sixty days that you are insured against a greater loss than five per cent and commissions, and the cost of your insurance (the price of the "put"), it may sell at either 70 or 40—possibly both. This time, after selling at 59, at which you failed to take your profit, it declined to 45, and during the remainder of the time did not rally above 48. The day that your put was to expire and before the hour named in the agreement, your broker took around 100 shares Louisville and Nashville to the person who had sold you the privilege, and received a check for $5,100 (the amount at 51) which he placed to your credit. You had already been charged with $5,600 (the cost at 56) and commissions, $25, and $100 for the "put," making your total loss $625. There was no interest charge because your balance with your broker was more than the total cost of the 100 shares of stock. The person who sold you the put may have sold the stock before the break at 59, and thus made $800, besides the $100 which you paid him, out of the stock which you delivered (or put) to him at 51, and with which he in turn balanced his short account. If he waited until the stock was put to him, of course he lost money.

If you had sold Louisville and Nashville short, instead of buying it, and wished to insure against a given amount of loss, you would have bought a call instead of a put, that is, you would have paid a premium (the price of the call) for the privilege of calling for the stock at a given price, with which to close your short account. If the market takes the course that you think it will, and you therefore have no use for your put or call, you lose the money paid for it in the same way that you lose the premium on your fire insurance, when the house does not burn.

Persons buy puts and calls also without taking any other risk in the market. If you should pay $125 for the privilege of "putting" 100 shares of Delaware, Lackawanna and Western stock at any time within ten days at 128, and you were able to buy it in the meantime at 125, you would evidently make three per cent, $300 less the price of the put, $125, or a net profit of $175. If the stock during the time did not sell below 126¾, the privilege would be of no value to you. A "straddle," or "double privilege," permits you either to put or to call the stock at the prices named. If Lake Shore is selling at 108 and the market is feverish and liable, as you believe, to wide fluctuations, while at the same time you are in doubt as to whether it will advance or decline, you may be willing to pay, we will suppose, $200 for the privilege of putting 100 shares of Lake Shore at 104 or of calling it at 112, at any time within ninety days. Of course, you lose your $200, unless the stock sells either above or below the extreme quotations mentioned, and your profit depends upon the advance or decline from those figures. The

operation is just what the terms indicate—you straddle the market, or have a double privilege in either putting or calling the stock.

HOW STOCKS ARE LISTED AND FORGERIES OBVIATED.

The adjudication of all disputed questions as to the regularity of stock certificates, bonds, etc. (except United States government securities), dealt in at the Exchange, and all applications for placing on the list the securities of the several states, are referred to the committee on securities. The United States government securities have a special committee. The most important of the securities committees, however, is the committee on stock list, to which is referred the arrangement of the calls of stocks and bonds, and all applications for placing stocks, bonds, etc., except those above mentioned, on the list dealt in at the Stock Exchange. Each application must be accompanied by a fee of $100 (formerly the fee was $50), to cover cost of printing and other expenses of the committee. The fee becomes the property of the Exchange, whether the application is accepted or rejected. When making application for listing additional amounts of stocks or bonds which are already on the list, the fee is $50. All applications should be addressed and checks should be drawn to the order of the Chairman of the Stock List committee, who for many years past has been Mr. S. T. Russell.

In all cases of application for placing either stocks or bonds of railroad companies on the list, it is required that a full statement of the location and description of the property, and, when possible, a map shall be furnished. The statement should give: 1, Title of the company; 2, when organized, and by what authority; 3, route from —— to ——; 4, miles of road completed and in operation, and any contemplated extension; 5, gauge; 6, iron rails; 7, steel rails; 8, equipment; 9, liabilities and assets; 10, number of shares and par value of each; 11, a list of the company's officers, etc.; 12, office of the company; 13, transfer office; 14, registry. When possible the statement should be made by an officer of the company. If it is a reorganization of an old road the particulars should be stated.

It is also required that a sample of each issue of stock or bonds shall be shown to the committee, so that it may ascertain whether proper precautions have been taken against forgery. No form of stock certificate or bond will be accepted unless it has been carefully engraved by some responsible bank note engraving company. The face of every bond, coupon or certificate of stock must be printed from steel plates which have been engraved in the best manner, with such varieties of work as will afford the greatest security against counterfeiting by hand. For each document or instrument there must be at least two steel plates, viz.: a *tint plate*, from which will be printed an anti-photographic color, so arranged as to underlie important portions of the face printing, and a *face plate* containing the vignettes and lettering of the descriptive or promissory portion of the document, to be printed in black or in black mixed with a color. These

A BROKER'S OFFICE.

two printings must be so made upon the paper that the combined effect of the whole, if photographed, would be a confused mass of lines and forms, to secure effectually against counterfeiting by scientific processes.

All active stocks must be registered at some institution satisfactory to the committee, and each application must be accompanied by a letter from the registrar stating the amount of stock registered at the time of application, and also by "The Form of Agreement with Registrars," duly executed, provided such form has not already been filed with the committee. In case of any subsequent increase of capital stock, at least thirty days' notice must be given through the newspapers, and in writing to the president of the Stock Exchange, of any intended increase of the number of shares, either direct or through the issue of convertible bonds, and a statement must be made of the object for which

such increase of stock or bonds is about to be made. After any stock has once been placed on the list, any change in the form of certificate, or place of registry, must receive the consent of the committee, otherwise the stock will be liable to be stricken from the list. Coupon bonds with privilege of registration cease to be a good delivery on the Stock Exchange in case the unmatured coupons are removed.

Applications to place bonds on the list must give a description of the bonds as follows: 1, The amount of the issue; 2, the date of the issue; 3, the maturity; 4, the par value of each kind of bond issued; 5, the series of numbers under each mortgage; 6, the rate of interest; 7, when payable; 8, the names of the trustees. Five copies of the mortgage must also be furnished, and the issue must be only on such portions of road as are actually completed.

The committee has the power to transfer stocks and bonds from the free list to the regular list, and from the regular list to the free list, as it may deem proper.

GOVERNMENT LOANS IN WALL STREET.

The solid, substantial and conservative character of Wall street has been most fully displayed by the manner in which it has handled the national loans, and the statement will probably go unrefuted by any one of judgment, that without Wall street aid, the national cause could not have had a successful issue. When Jay Cooke & Co. were selected as the fiscal agents of the government for the negotiation of the first great loan of five hundred millions of the 5-20s of 1863, they immediately came to New York and appointed two or three leading Wall street banking houses as their representatives there. One of those, Fisk & Hatch, which since became the leading government bond house of the country, was only about a year old, and both the members of the firm were young men. But they possessed an abiding faith in the government, and with great zeal they began their work. Every dollar of their commissions was spent in advertising the bonds, and the placing of the loan, about which there had been so much solicitude, both by the government officials and the patriotic people of the country, soon became an accomplished fact. When most of the bonds had been disposed of, the demand for them became so great that in the final transaction $15,000,000 more were bid for than the amount remaining unsold, and subsequently the loan was increased by that amount, making the total $515,000,000.

In all subsequent negotiations of the government loans, and especially in the refunding operations that have taken place since the war, Wall street has done most or all of the business. The largest single subscription that was ever made in this or any other country, was when the last of the four per cents were taken. The amount authorized which had not yet been subscribed for was about $180,000,000. Early one morning—before the usual banking hours—the officers of the First National Bank were closeted with Fisk & Hatch, who had proposed that the whole amount remaining with the treasury be taken in a block. It was an extremely bold proposition, and at first the First National officials hesitated. They wanted to advise with some of their friends. In this way the scheme leaked out, and several prominent banking houses forwarded private subscriptions amounting in the aggregate to $60,000,000. When the subscription of the syndicate, which had been formed during the day, was telegraphed to Washington in the afternoon agreeing to take all the four per cents that were remaining unsold at one-half per cent above par and accrued interest, there were, therefore only $120,000,000 left of the $180,000,000, which the secretary had on hand in the morning.

When congress failed to provide for the redemption of the 5s and 6s of 1881, Secretary Windom visited New York to consult with the bankers there and perfect a plan by which the honor and good faith of the government would be maintained. Earnest efforts were made to persuade the secretary that a three per cent bond could be floated at par, but others advocated four per cent, and Mr. Windom adopted a medium between the two rates—3½ per cent. Since that time, however, three per cents have sold at 104. In the past twenty years Wall street has seen six per cent government bonds sell at 90 and four per cents at 123. Gold rose from par to 285 and went back to par again.

Government bonds are bought and sold mostly over the counters of a few leading bankers, and they have passed entirely from the speculative portion of the market, but the time was when there were large transactions on the Stock Exchange, although the whole of the day's business was never done there, as is practically the case with railroad stocks and bonds that are listed. In April, 1879, the total sales of government bonds reported at the Stock Exchange were $15,822,850, and for the whole year they aggregated $112,571,850. In 1880 the business at the board fell to $58,459,600, and in 1881, to $36,663,250. For some time past there were several days in succession without the report of a single transaction.

When the government officials visit New York to consult the financiers on Wall street, the conferences during the day are usually held in the sub-treasury building on the corner of Wall and Nassau streets—sometimes at the custom house. The evening sessions are generally at the Fifth Avenue hotel. It was at the latter place that William H. Vanderbilt, then a young man, called on President Grant, when the General visited the city on a memorable occasion to see what aid could be extended to Wall street. William H. had come as an emissary from his father, and before he had proceeded far in the presentation of the Commodore's scheme, he was interrupted by the General suddenly inquiring after the Commodore's health.

"It is very good, thank you," replied William H.

"Then why don't he come himself to see me?"

CUSTOMERS' ROOM.

The hint was sufficient, and the Commodore lost no time in calling on the President. But nothing of a substantial character was accomplished by the interview. In fact, the history of Wall street has become so closely interwoven with the financial history of the government, that neither can be told without giving in part the record of the other. If the government wants money, it goes to Wall street to get it. If Wall street wants money, it goes to the people. Once the secretary of the treasury thought he would ignore Wall street. In his refunding operations he prepared a bond for the people, and to make it particularly attractive to the masses, he provided that any one who had $10 to invest could place it in a government interest-bearing certificate, and when enough of these certificates were accumulated to equal its face, they were convertible into a bond. These certificates could be obtained direct from the government, and in this way the secretary proposed to avoid the payment of a commission for the negotiation of the bonds. The scheme was such a complete failure as to become the subject of ridicule.

In all its subsequent refunding operations the government has unhesitatingly availed itself of the assistance of Wall street, and its pre-eminent success is demonstrated by the fact that United States government three per cents, redeemable at any time at the will of the government (but never payable until the government is ready to discharge the debt), thus having an uncertain time to run, command a higher price in the market than British three per cent consols that are certain to have a life of at least a century. At one time, when prices were lower, Europe bought very largely of our bonds through Wall street banking houses having branches abroad, but the refunding of the bonds bearing a high rate of interest into bonds bearing a low rate of interest and the high price which all of our bonds command in our own market, have caused most of those held abroad to be returned to this country, in exchange for which European capitalists have invested more largely in the better class of American railroad stocks and bonds, many millions of which are now held by them.

MISCELLANEOUS SPECULATIONS.

The business of Wall street is not confined to dealings in government and state bonds and railroad stocks and bonds. As early as 1865 a mining stock exchange was established, three years after the organization of the first mining exchange in San Francisco, but its usefulness was short-lived. It was nearly ten years before the subject was again revived, since which time there have been one, and for three years prior to June 1, 1883, two mining exchanges in the vicinity of Wall street. Trading in mining stocks reached such magnitude that the sales reported at the two exchanges in 1881 amounted to 43,027,426 shares, and for the first six months of 1882, to 28,211,052 shares. The most profitable period, however, was from 1878 to 1881, when many millions of eastern capital was invested in mining stocks. The business was so badly managed, and some of the manipulations were of such an outrageous character, however, that mining stocks have fallen into great disrepute. One of the exchanges has closed its doors, and the other has avoided a similar

fate by adding dealings in other securities to those of mining, especially petroleum. Nevertheless a good deal of money is still finding its way from Wall street into mining enterprises, but instead of corporations capitalized at many times the value of the properties represented, most of the business is now done quietly, by the formation of small syndicates or similar combinations, and the purchase of mining property, which is developed under the direct supervision of a few persons most deeply interested in the mines.

An important feature of Wall street speculation, which has assumed very large proportions within the past year or two, is the dealings in grain and provision options, mostly on the Chicago market. Started by the efforts of a single broker, whose office was under his hat, the business to-day furnishes a handsome profit for more than twenty firms who devote their attention exclusively to the Chicago market, where the "New York party" forms a very important element in the dealings.

Still more recently dealings in petroleum have assumed a business like shape. First one and then a second petroleum exchange was organized, and the daily purchases and sales range from 1,500,000 to 10,000,000 barrels. A remarkable feature of the present market is the fact, that petroleum certificates are considered a good collateral among the Wall street brokers in negotiating loans.

USE OF THE TICKER.

A very important part performed in the great volume of business transacted in Wall street, is to be credited to an ingenious little instrument called the "ticker," which supplies the brokers' and other offices in the vicinity of the Stock Exchange with a report of the sales and quotations. Prior to its adoption the means of communication between the brokers' offices and the floor of the Exchange consisted of messenger boys, who were sent to and fro. This involved, necessarily, considerable delay, and wide fluctuations sometimes took place on 'change before the state of affairs could be made known to the brokers in their offices and their customers.

Various inventors have produced different devices for the purpose of transmitting the quotations, all somewhat similar in their construction, and the method is to have reporters stationed throughout the Exchange hall to watch and report the movements of each crowd. Until recently the Stock Exchange had never exacted nor received any compensation for the privilege of allowing reporters on the floor of the Exchange, but the competition from different companies representing the different patents on "tickers" became so strong that they offered to pay the Exchange for the exclusive privilege, and as a result, the Stock Exchange now receives $36,000 per annum.

The reports of purchases and sales are obtained by trained employes, who are constantly watching the different groups of operators on the floor of the Exchange, and who are supposed to make a record of every transaction. To aid them they have the privilege of overlooking the memoranda made by the brokers, and if a broker has reason to suppose that a sale which he has made has not been reported, he is expected to furnish one of the reporters with the information. If there is delay in getting report of a sale and the price in the meantime has changed, the transaction appears on the ticker with the word "sold" before it, thus indicating that one or more recent reports at a different price have been published. Occasionally it happens that a sale is made at a price which does not appear on the published list throughout the day. In such cases, for the purpose both of satisfying the customer and of protecting the broker against suspicion, the ticker, on the following day, announces the sale, together with the name of the broker. Reports of the sales are sent from the floor of the Exchange to the operating rooms of the companies, as fast as they are collected, by means of an ordinary Morse telegraph instrument, and are read by sound in the operating rooms, but a record is also made by a recording instrument in order that any errors may be corrected. The reports are distributed from the operating rooms of each company to all of its indicators, or "tickers," at the same time, by means of an instrument called the "transmitter," the key-board of which has much the the same appearance as the key-board of a piano, the black keys representing letters and the white keys figures and fractions. By striking any given key of this instrument, a small wheel of the indicator, which is similarly lettered, is liberated, and by a weight not unlike that of a clock, or by power carried over the electric wire, as the case may be, the wheel is made to revolve until the desired letter or figure comes in contact with a narrow strip of paper (called the "tape") passing through the instrument, when the further revolution of the wheel is arrested, and at the same instant the tape is pressed firmly against it. There are two wheels, one for figures and the other for letters, and by keeping them properly inked by means of an ink ball, the tape comes from the ticker with the desired letters and figures very distinctly printed upon

it. Thus, if Lake Shore and Michigan Southern stock has just sold at 112⅜, the transaction will appear on the tape with the letters "L. S." on the upper side of the tape, and the figures "112⅜" just beyond and on the lower side. At present the Gold and Stock Telegraph Company has about 1,000 instruments in operation in the various brokers' and bankers' offices, the leading hotels and other places of resort by speculators, all of which furnish only the sales and quotations of the Stock Exchange. The Commercial company has several hundred tickers in operation. It has been in business only a short time and the number is rapidly increasing. The Gold and Stock company also operates about 300 instruments, which give quotations of cotton and petroleum and of mining stocks, and about 300 more which furnish financial news, miscellaneous quotations and other matter of interest on Wall street.

Constitution of the United States.

WE, the people of the United States, in order to form a perfect Union, establish justice, insure domestic tranquility, provide for common defence, promote the general welfare, and secure the blessings of liberty to ourselves and our posterity, do ordain and establish this CONSTITUTION for the United States of America.

ARTICLE I.

SECTION I.

1. All legislative powers herein granted shall be vested in a Congress of the United States, which shall consist of a Senate and House of Representatives.

SECTION II.

1. The House of Representatives shall be composed of members chosen every second year by the people of the several States, and the electors in each State shall have the qualifications requisite for electors of the most numerous branch of the State Legislature.

2. No person shall be a Representative who shall not have attained to the age of twenty-five years, and been seven years a citizen of the United States, and who shall not, when elected, be an inhabitant of that State in which he shall be chosen.

3. Representatives and direct taxes shall be apportioned among the several States which may be included within this Union according to their respective numbers, which shall be determined by adding to the whole number of free persons, including those bound to service for a term of years, and excluding Indians not taxed, three-fifths of all other persons. The actual enumeration shall be made within three years after the first meeting of the Congress of the United States, and within every subsequent term of years, in such manner as they shall by law direct. The number of Representatives shall not exceed one for every thirty thousand, but each State shall have at least one Representative; and until such enumeration shall be made, the State of New Hampshire shall be entitled to choose 3; Massachusetts, 8; Rhode Island and Providence Plantations, 1; Connecticut, 5; New York, 6; New Jersey, 4; Pennsylvania, 8; Delaware, 1; Maryland, 6; Virginia, 10; North Carolina, 5; South Carolina, 5, and Georgia, 3.

4. When vacancies happen in the representation from any State, the Executive Authority thereof shall issue writs of election to fill such vacancies.

5. The House of Representatives shall choose their Speaker and other officers, and shall have the sole power of impeachment.

SECTION III.

1. The Senate of the United States shall be composed of two Senators from each State, chosen by the Legislature thereof, for six years; and each Senator shall have one vote.

2. Immediately after they shall be assembled in consequence of the first election, they shall be divided as equally as may be into three classes. The seats of the Senators of the first class shall be vacated at the expiration of the second year, of the second class at the expiration of the fourth year, and of the third class at the expiration of the sixth year, so that one-third may be chosen every second year; and if vacancies happen by resignation, or otherwise, during the recess of the Legislature of any State, the Executive thereof may make temporary appointment until the next meeting of the Legislature, which shall then fill such vacancies.

3. No person shall be a Senator who shall not have attained to the age of thirty years, and been nine years a citizen of the United States, and who shall not, when elected, be an inhabitant of that State for which he shall be chosen.

4. The Vice-President of the United States shall be President of the Senate, but shall have no vote unless they be equally divided.

5. The Senate shall choose their other officers, and also a President *pro tempore*, in the absence of the Vice-President, or when he shall exercise the office of President of the United States.

6. The Senate shall have the sole power to try all impeachments. When sitting for that purpose, they shall be on oath or affirmation. When the President of the United States is tried, the Chief Justice shall preside; and no person shall be convicted without the concurrence of two-thirds of the members present.

7. Judgment in cases of impeachment shall not extend further than to removal from office, and disqualification to hold and enjoy any office of honor, trust or profit under the United States; but the party convicted shall nevertheless be liable and subject to indictment, trial, judgment, and punishment, according to law.

SECTION IV.

1. The times, places, and manner of holding elections for Senators and Representatives shall be prescribed in each State by the Legislature thereof; but the Congress may at any time by law make or alter such regulations, except as to the places of choosing Senators.

2. The Congress shall assemble at least once in every year, and such meeting shall be on the first Monday in December, unless they shall by law appoint a different day.

SECTION V.

1. Each House shall be the judge of the elections, returns, and qualifications of its own members, and a majority of each shall constitute a quorum to do business; but a smaller number may adjourn from day to day; and may be authorized to compel the attendance of absent members in such manner and under such penalties as each House may provide.

2. Each House may determine the rules of its proceedings, punish its members for disorderly behavior, and with the concurrence of two-thirds expel a member.

3. Each House shall keep a journal of its proceedings, and from time to time publish the same, except such parts as may in their judgment require secrecy; and the yeas and nays of the members of either House on any question shall, at the desire of one-fifth of those present, be entered on the journal.

4. Neither House, during the session of Congress, shall, without the consent of the other, adjourn for more than three days, nor to any other place than that in which the two Houses shall be sitting.

SECTION VI.

1. The Senators and Representatives shall receive a compensation for their services, to be ascertained by law, and paid out of the Treasury of the United States. They shall in all cases, except treason, felony, and breach of the peace, be privileged from arrest during their attendance at the session of their respective Houses, and in going to and returning from the same; and for any speech or debate in either House they shall not be questioned in any other place.

2. No Senator or Representative shall, during the time for which he was elected, be appointed to any civil office under the authority of the United States which shall have been created, or the emoluments whereof shall have been increased during such time; and no person holding any office under the United States shall be a member of either House during his continuance in office.

SECTION VII.

1. All bills for raising revenue shall originate in the House of Representatives, but the Senate may propose or concur with amendments, as on other bills.

2. Every bill which shall have passed the House of Representatives and the Senate shall, before it become a law, be presented to the President of the United States; if he approve, he shall sign it, but if not, he shall return it, with his objections, to that House in which it shall have originated, who shall enter the objections at large on their journal and proceed to reconsider it. If after such reconsideration two-thirds of that House shall agree to pass the bill, it shall be sent, together with the objections, to the other House, by which it shall likewise be reconsidered; and if approved by two-thirds of that House it shall become a law. But in such cases the votes of both Houses shall be determined by yeas and nays, and the names of the persons

voting for and against the bill shall be entered on the journal of each House respectively. If any bill shall not be returned by the President within ten days (Sundays excepted) after it shall be presented to him, the same shall be a law in like manner as if he had signed it, unless the Congress by their adjournment prevent its return; in which case it shall not be a law.

3. Every order, resolution, or vote to which the concurrence of the Senate and House of Representatives may be necessary (except on a question of adjournment) shall be presented to the President of the United States; and before the same shall take effect shall be approved by him, or being disapproved by him, shall be repassed by two-thirds of the Senate and the House of Representatives, according to the rules and limitations prescribed in the case of a bill.

SECTION VIII.

1 The Congress shall have power:

To lay and collect taxes, duties, imposts, and excises, to pay the debts and provide for the common defence and general welfare of the United States; but all duties, imposts, and excises shall be uniform throughout the United States.

2. To borrow money on the credit of the United States.

3 To regulate commerce with foreign nations, and among the several States, and with the Indian tribes.

4. To establish an uniform rule of naturalization and uniform laws on the subject of bankruptcies throughout the United States.

5. To coin money, regulate the value thereof, and of foreign coin, and fix the standard of weights and measures.

6. To provide for the punishment of counterfeiting the securities and current coin of the United States.

7. To establish post-offices and post-roads.

8. To promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive rights to their respective writings and discoveries.

9. To constitute tribunals inferior to the Supreme Court.

10. To define and punish piracies and felonies committed on the high seas, and offences against the law of nations.

11. To declare war, grant letters of marque and reprisal, and make rules concerning captures on land and water.

12. To raise and support armies, but no appropriation of money to that use shall be for a longer term than two years.

13. To provide and maintain a navy.

14. To make rules for the government and regulation of the land and naval forces.

15. To provide for calling forth the militia to execute the laws of the Union, suppress insurrections, and repel invasions.

16. To provide for organizing, arming, and disciplining the militia, and for governing such part of them as may be employed in the service of the United States, reserving to the States respectively the appointment of the officers, and the authority of training the militia according to the discipline prescribed by Congress.

17. To exercise exclusive legislation in all cases whatsoever over such district (not exceeding ten miles square) as may, by cession of particular States and the acceptance of Congress, become the seat of Government of the United States, and to exercise like authority over all places purchased by the consent of the Legislature of the State in which the same shall be, for the erection of forts, magazines, arsenals, dry-docks, and other needful buildings. And

18. To make all laws which shall be necessary and proper for carrying into execution the foregoing powers, and all other powers vested by this Constitution in the Government of the United States, or in any department or officer thereof.

SECTION IX.

1. The migration or importation of such persons as any of the States now existing shall think proper to admit shall not be prohibited by the Congress prior to the year one thousand eight hundred and eight, but a tax or duty may be imposed on such importation, not exceeding ten dollars for each person.

2. The privilege of the writ of habeas corpus shall not be suspended, unless when in cases of rebellion or invasion the public safety may require it.

3. No bill of attainder or *ex post facto* law shall be passed.

4. No capitation or other direct tax shall be laid, unless in proportion to the census or enumeration hereinbefore directed to be taken.

5. No tax or duty shall be laid on articles exported from any State.

6. No preference shall be given by any regulation of commerce or revenue to the port of one State over those of another, nor shall vessels bound to or from one State be obliged to enter, clear or pay duties in another.

7. No money shall be drawn from the Treasury but in consequence of appropriations made by law; and a regular statement and account of the receipts and expenditures of all public money shall be published from time to time.

8. No title of nobility shall be granted by the United States. And no person holding any office of profit or trust under them shall, without consent of the Congress, accept of any present, emolument, office, or title of any kind whatever from any king, prince, or foreign state.

SECTION X.

1. No State shall enter into any treaty, alliance, or confederation, grant letters of marque and reprisal, coin money, emit bill of credit, make anything but gold and silver coin a tender in payment of debts, pass any bill of attainder, *ex post facto* law, or law impairing the obligation of contracts, or grant any title of nobility.

2. No State shall, without the consent of the Congress, lay any impost or duties on imports or exports, except what may be absolutely necessary for executing its inspection laws; and the net produce of all duties and imposts, laid by any State on imports or exports, shall be for the use of the Treasury of the United States; and all such laws shall be subject to the revision and control of the Congress.

3. No State shall, without the consent of Congress, lay any duty of tonnage, keep troops or ships of war in time of peace, enter into any agreement or compact with another State, or with a foreign power, or engage in war, unless actually invaded, or in such imminent danger as will not admit of delay.

ARTICLE II.

SECTION I.

1. The executive power shall be vested in a President of the United States of America. He shall hold his office during the term of four years, and, together with the Vice-President, chosen for the same term, be elected as follows:

2. Each State shall appoint, in such manner as the Legislature thereof may direct, a number of electors, equal to the whole number of Senators and Representatives to which the State may be entitled in the Congress; but no Senator or Representative or person holding an office of trust or profit under the United States shall be appointed an elector.

3. The electors shall meet in their respective States and vote by ballot for two persons, of whom one at least shall not be an inhabitant of the same State with themselves. And they shall make a list of all the persons voted for, and of the number of votes for each, which list they shall sign and certify and transmit, sealed, to the seat of the government of the United States, directed to the President of the Senate. The President of the Senate shall, in the presence of the Senate and House of Representatives, open all the certificates, and the votes shall then be counted. The person having the greatest number of votes shall be the President, if such number be a majority of the whole number of electors appointed, and if there be more than one who have such majority, and have an equal number of votes, then the House of Representatives shall immediately choose by ballot one of them for President; and if no person have a majority, then from the five highest on the list the said House shall be taken by States, the representation from each State having one vote. A quorum, for this purpose, shall consist of a member or members from two-thirds of the States, and a majority of all the States shall be necessary to a choice. In every case, after the choice of the President, the person having the greatest number of votes of the electors shall be the Vice-President. But if there should remain two or more who have equal votes, the Senate shall choose from them by ballot the Vice-President.

4. The Congress may determine the time of choosing the electors and the day on which they shall give their votes, which day shall be the same throughout the United States.

5. No person except a natural born citizen, or a citizen of the United States at the time of the adoption of this Constitution, shall be eligible to the office of President; neither shall any person be eligible to that office who shall not have attained to the age of thirty-five years and been fourteen years a resident within the United States.

6. In case of the removal of the President from office, or of his death, resignation, or inability to discharge the powers and duties of the said office, the same shall devolve on the Vice-President, and the Congress may by law provide for the case of removal, death, resignation, or inability, both of the President and Vice-President, declaring what officer shall then act as President, and such officer shall act accordingly until the disability be removed or a President shall be elected.

7. The President shall, at stated times, receive for his services a compensation, which shall neither be increased nor diminished during the period for which he shall have been elected, and he shall not receive within that period any other emolument from the United States, or any of them.

8. Before he enter on the execution of his office he shall take the following oath or affirmation:

"I do solemnly swear (or affirm), that I will faithfully execute the office of President of the United States, and will, to the best of my ability, preserve, protect, and defend the Constitution of the United States."

SECTION II.

1. The President shall be Commander-in-Chief of the Army and Navy of the United States, and of the militia of the several States

when called into actual service of the United States; he may require the opinion, in writing, of the principal officer in each of the executive departments upon any subject relating to the duties of their respective offices, and he shall have power to grant reprieves and pardons for offences against the United States except in cases of impeachment.

2. He shall have power, by and with the advice and consent of the Senate, to make treaties, provided two-thirds of the Senators present concur; and he shall nominate, and by and with the advice and consent of the Senate shall appoint ambassadors, other public ministers and consuls, judges of the Supreme Court, and all other officers of the United States whose appointments are not herein otherwise provided for, and which shall be established by law; but the Congress may by law vest the appointment of such inferior officers as they think proper in the President alone, in the courts of law, or in the heads of departments.

3. The President shall have power to fill up all vacancies that may happen during the recess of the Senate by granting commissions, which shall expire at the end of their next session.

SECTION III.

He shall from time to time give to the Congress information of the state of the Union, and recommend to their consideration such measures as he shall judge necessary and expedient; he may, on extraordinary occasions, convene both Houses, or either of them, and in case of disagreement between them with respect to the time of adjournment, he may adjourn them to such time as he shall think proper; he shall receive ambassadors and other public ministers; he shall take care that the laws be faithfully executed, and shall commission all the officers of the United States.

SECTION IV.

The President, Vice-President, and all civil officers of the United States shall be removed from office on impeachment for and conviction of treason, bribery, or other high crimes and misdemeanors.

ARTICLE III.

SECTION I.

The judicial power of the United States shall be vested in one Supreme Court, and in such inferior courts as the Congress may from time to time ordain and establish. The judges, both of the Supreme and inferior courts, shall hold their offices during good behavior, and shall at stated times receive for their services a compensation which shall not be diminished during their continuance in office.

SECTION II.

1. The judicial power shall extend to all cases in law and equity arising under this Constitution, the laws of the United States, and treaties made, or which shall be made, under their authority; to all cases affecting ambassadors, other public ministers, and consuls; to all cases of admiralty and maritime jurisdiction; to controversies to which the United States shall be a party; to controversies between two or more States, between a State and citizens of another State, between citizens of different States, between citizens of the same State claiming lands under grants of different States, and between a State, or the citizens thereof, and foreign States, citizens, or subjects.

2. In all cases affecting ambassadors, other public ministers, and consuls, and those in which a State shall be party, the Supreme Court shall have original jurisdiction. In all the other cases before-mentioned the Supreme Court shall have appellate jurisdiction both as to law and fact, with such exceptions and under such regulations as the Congress shall make.

3. The trial of all crimes, except in cases of impeachment, shall be by jury, and such trial shall be held in the State where the said crimes have been committed; but when not committed within any State, the trial shall be at such place or places as the Congress may by law have directed.

SECTION III.

1. Treason against the United States shall consist only in levying war against them, or in adhering to their enemies, giving them aid and comfort. No person shall be convicted of treason unless on the testimony of two witnesses to the same overt act, or on confession in open court.

2. The Congress shall have power to declare the punishment of treason, but no attainder of treason shall work corruption of blood or forfeiture except during the life of the person attainted.

ARTICLE IV.

SECTION I.

Full faith and credit shall be given in each State to the public acts, records, and judicial proceedings of every other State. And the Congress may by general laws prescribe the manner in which such acts, records, and proceedings shall be proved, and the effect thereof.

SECTION II.

1. The citizens of each State shall be entitled to all privileges and immunities of citizens in the several States.

2. A person charged in any State with treason, felony, or other crime, who shall flee from justice, and be found in another State, shall, on demand of the executive authority of the State from which he fled, be delivered up, to be removed to the State having jurisdiction of the crime.

3. No person held to service or labor in one State, under the laws thereof, escaping into another shall, in consequence of any law or regulation therein, be discharged from such service or labor, but shall be delivered up on claim of the party to whom such service or labor may be due.

SECTION III.

1. New States may be admitted by the Congress into this Union; but no new State shall be formed or erected within the jurisdiction of any other State, nor any State be formed by the junction of two or more States, or parts of States, without the consent of the Legislatures of the States concerned, as well as of the Congress.

2. The Congress shall have power to dispose of and make all needful rules and regulations respecting the territory or other property belonging to the United States; and nothing in this Constitution shall be so construed as to prejudice any claims of the United States, or of any particular State.

SECTION IV.

The United States shall guarantee to every State in this Union a republican form of government, and shall protect each of them against invasion, and, on application of the Legislature, or of the Executive (when the Legislature cannot be convened), against domestic violence.

ARTICLE V.

The Congress, whenever two-thirds of both Houses shall deem it necessary, shall propose amendments to this Constitution, or, on the application of the Legislatures of two-thirds of the several States, shall call a convention for proposing amendments, which, in either case, shall be valid to all intents and purposes, as part of this Constitution, when ratified by the Legislatures of three-fourths of the several States, or by conventions in three-fourths thereof, as the one or the other mode of ratification may be proposed by the Congress; provided that no amendments which may be made prior to the year one thousand eight hundred and eight shall in any manner affect the first and fourth clauses in the Ninth Section of the First Article; and that no State, without its consent, shall be deprived of its equal suffrage in the Senate.

ARTICLE VI.

1. All debts contracted and engagements entered into before the adoption of this Constitution shall be as valid against the United States under this Constitution as under the Confederation.

2. This Constitution and the laws of the United States which shall be made in pursuance thereof and all treaties made, or which shall be made, under the authority of the United States, shall be the supreme law of the land; and the judges in every State shall be bound thereby, anything in the Constitution or laws of any State to the contrary notwithstanding.

3. The Senators and Representatives before mentioned, and the members of the several State Legislatures, and all executive and judicial officers, both of the United States and of the several States, shall be bound by oath or affirmation to support this Constitution; but no religious test shall ever be required as a qualification to any office or public trust under the United States.

ARTICLE VII.

The ratification of the Conventions of nine States shall be sufficient for the establishment of this Constitution between the States so ratifying the same.

AMENDMENTS TO THE CONSTITUTION.

ARTICLE I.

Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances.

ARTICLE II.

A well-regulated militia being necessary to the security of a free State, the right of the people to keep and bear arms shall not be infringed.

ARTICLE III.

No soldier shall, in time of peace, be quartered in any house without the consent of the owner, nor in time of war but in a manner to be prescribed by law.

ARTICLE IV.

The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall

not be violated, and no warrants shall issue but upon probable cause, supported by oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.

ARTICLE V.

No person shall be held to answer for a capital or other infamous crime unless on a presentment or indictment of a grand jury, except in cases arising in the land or naval forces, or in the militia, when in actual service, in time of war or public danger; nor shall any person be subject for the same offence to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use without just compensation.

ARTICLE VI.

In all criminal prosecutions, the accused shall enjoy the right to a speedy and public trial, by an impartial jury of the State and district wherein the crime shall have been committed, which district shall have been previously ascertained by law, and to be informed of the nature and cause of the accusation; to be confronted with the witnesses against him; to have compulsory process for obtaining witnesses in his favor, and to have the assistance of counsel for his defence.

ARTICLE VII.

In suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved, and no fact tried by a jury shall be otherwise re-examined in any court of the United States than according to the rules of the common law.

ARTICLE VIII.

Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted.

ARTICLE IX.

The enumeration in the Constitution of certain rights shall not be construed to deny or disparage others retained by the people

ARTICLE X.

The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people.

ARTICLE XI.

The judicial power of the United States shall not be construed to extend to any suit in law or equity, commenced or prosecuted against one of the United States, by citizens of another State, or by citizens or subjects of any foreign State.

ARTICLE XII.

The electors shall meet in their respective States, and vote by ballot for President and Vice-President, one of whom at least shall not be an inhabitant of the same State with themselves; they shall name in their ballots the person voted for as President, and in distinct ballots the person voted for as Vice-President; and they shall make distinct lists of all persons voted for as President, and of all persons voted for as Vice-President, and of the number of votes for each, which list they shall sign and certify, and transmit, sealed, to the seat of the government of the United States, directed to the President of the Senate; the President of the Senate shall, in the presence of the Senate and House of Representatives, open all the certificates, and the votes shall then be counted; the person having the greatest number of votes for President shall be the President, if such number be a majority of the whole number of electors appointed; and if no person have such majority, then from the person having the highest numbers not exceeding three, on the list of those voted for as President, the House of Representatives shall choose immediately, by ballot, the President. But in choosing the President, the votes shall be taken by States, the representation from each State having one vote; a quorum for this purpose shall consist of a member or members from two-thirds of the States, and a majority of all the States shall be necessary to a choice. And if the House of Representatives shall not choose a President, whenever the right of choice shall devolve upon them, before the fourth day of March next following, then the Vice-President shall act as President, as in the case of death or other constitutional disability of the President. The person having the greatest number of votes as Vice-President shall be the Vice-President, if such number be a majority of the whole number of electors appointed, and if no person have a majority, then from the two highest numbers on the list the Senate shall choose the Vice-President; a quorum for the purpose shall consist of two-thirds of the whole number of Senators, and a majority of the whole number shall be necessary to a choice. But no person constitutionally ineligible to the office of President shall be eligible to that of Vice-President of the United States.

ARTICLE XIII.

1. Neither slavery nor involuntary servitude, except as a punishment for crime whereof the party shall have been duly convicted, shall exist within the United States, or any place subject to their jurisdiction.

2. Congress shall have power to enforce this article by appropriate legislation.

ARTICLE XIV.

1. All persons born or naturalized in the United States and subject to the jurisdiction thereof, are citizens of the United States and of the State wherein they reside. No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any State deprive any person of life, liberty, or property without due process of law, nor deny to any person within its jurisdiction the equal protection of the laws.

2. Representatives shall be apportioned among the several States according to their respective numbers, counting the whole number of persons in each State, excluding Indians not taxed. But when the right to vote at any election for the choice of electors for President and Vice-President of the United States, Representatives in Congress, the executive and judicial officers of a State, or the members of the Legislature thereof, is denied to any of the male members of such State being of twenty-one years of age, and citizens of the United States, or in any way abridged, except for participation in rebellion or other crime, the basis of representation therein shall be reduced in the proportion which the number of such male citizens shall bear to the whole number of male citizens twenty-one years of age in such State.

3. No person shall be a Senator or Representative in Congress, or elector of President and Vice-President, or hold any office, civil or military, under the United States, or under any State, who, having previously taken an oath, as a member of Congress, or as an officer of the United States, or as a member of any State Legislature, or as an executive or judicial officer of any State, to support the Constitution of the United States, shall have engaged in insurrection or rebellion against the same, or given aid and comfort to the enemies thereof. But Congress may, by a vote of two-thirds of each House remove such disability.

4. The validity of the public debt of the United States, authorized by law, including debts incurred for payment of pensions and bounties for services in suppressing insurrection or rebellion, shall not be questioned. But neither the United States nor any State shall assume or pay any debt or obligation incurred in aid of insurrection or rebellion against the United States, or any claim for the loss or emancipation of any slave, but all such debts, obligations, and claims shall be held illegal and void.

5. The Congress shall have power to enforce by appropriate legislation the provisions of this article.

ARTICLE XV.

1. The right of the citizens of the United States to vote shall not be denied or abridged by the United States or by any State, on account of race, color, or previous condition of servitude.

2. The Congress shall have power to enforce the provisions of this article by appropriate legislation.

RATIFICATION OF THE CONSTITUTION.

The Constitution was ratified by the thirteen original States in the following order:

Delaware, Dec. 7, 1787, unanimously; Pennsylvania, Dec. 12, 1787, vote 46 to 23; New Jersey, Dec. 18, 1787, unanimously; Georgia, Jan. 2, 1788, unanimously; Connecticut, Jan. 9, 1788, vote 128 to 40; Massachusetts, Feb. 6, 1788, vote 187 to 168; Maryland, April 28, 1788, vote 63 to 12; South Carolina, May 23, 1788, vote 149 to 73; New Hampshire, June 21, 1788, vote 57 to 46; Virginia, June 25, 1788, vote 89 to 79; New York, July 26, 1788, vote 30 to 28; North Carolina, Nov. 21, 1789, vote 193 to 75; Rhode Island, May 29, 1790, vote 34 to 32.

RATIFICATION OF THE AMENDMENTS.

I to X, inclusive, were declared in force Dec. 15, 1791.

XI was declared in force Jan. 8, 1798.

XII, regulating elections, was ratified by all the States except Connecticut, Delaware, Massachusetts, and New Hampshire, which rejected it. It was declared in force Sept. 28, 1804.

XIII, the emancipation amendment, was ratified by 31 of the 36 States; rejected by Delaware and Kentucky, not acted on by Texas, conditionally ratified by Alabama and Mississippi. Proclaimed Dec. 18, 1865.

XIV, reconstruction amendment, was ratified by 23 Northern States, rejected by Delaware, Kentucky, Maryland, and 10 Southern States and not acted on by California. The 10 Southern States subsequently ratified under pressure. Proclaimed July 28, 1868.

XV, Negro citizenship amendment, was not acted upon by Tennessee, rejected by California, Delaware, Kentucky, Maryland, New Jersey and Oregon; ratified by the remaining 30 States. New York rescinded its ratification Jan. 5, 1870. Proclaimed March 30, 1870.

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